

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. XXIII.

OCTOBER, 1906.

No. 4.

SOME UNPUBLISHED LETTERS OF ALEXANDER WILSON AND JOHN ABBOT.

BY WITMER STONE.

LETTERS of those in whose footsteps we are following and whose interests are our interests are always entertaining. Especially is this the case when it is supposed that all the existing letters of a writer have been collected and published. This being true of Alexander Wilson, my pleasure can readily be imagined when I recently came across three unpublished letters bearing his signature, stored away in the fireproof of the library of the Academy of Natural Sciences of Philadelphia. With them was one from John Abbot of Georgia, a correspondent of Wilson, well known as a collector and portrayer of insects.¹ Through the courtesy of Dr. Edward J. Nolan, Librarian of the Academy, I am able to present these four letters to the readers of 'The Auk.'

The first letter was written by Wilson while he was living in Philadelphia engaged in editing the 'American Cyclopædia', and addressed to Bartram at his home, across the Schuylkill, now Bartram's Garden in West Philadelphia.

¹ Abbot was born in England about 1760 and at an early age was sent to America by several prominent entomologists. He remained in Georgia and was still alive in 1840 (according to Swainson). Many of his paintings and notes were published as Smith and Abbot's Lepidopterous Insects of Georgia, 1797.

Number two is to his publishers, Mess. Bradford and Inskeep, written while he was canvassing for the *Cyclopædia* and the *Ornithology*, and incidentally contains some remarks of historic interest. Number three is to Abbot and contains more ornithology than probably any letter of Wilson that is extant.

Number four is from Abbot to Ord when the latter was engaged in completing Wilson's unfinished work.

I. WILSON TO BARTRAM.

Philad^a May 22^d, 1807

Dear Sir

With this you will receive V. 4 part 1st. of the *Am. Cyclopaedia*. It would have been sent a week ago but for want of an opportunity.

By the impressions of my two first plates that accompany this you will see that I have a request to make to Miss Bartram if the state of her health will permit. We want well coloured specimens of the plates to be sent to Boston, Charleston, New York &c. and as my time will not permit me to do them myself I have presumed to apply to her to colour the impressions that are sent with this, according to the specimens that accompany them, for which I shall make any return. Perhaps Mary Leech might be set to some parts of them with safety which would lessen the drudgery.

If this request should be considered as disagreeable you will not I am sure impute it to any motives but those of the highest esteem for those to whom I make it, and the impressions may be returned tomorrow by any safe conveyance with perfect good nature on both sides.

In washing the blue Jay the most difficult part of the process is to lay on the colour without being streaked (which you will see I have not succeeded in) and in giving the true tint which I think is nearly approached in the specimen. Nothing but a wash is necessary as the engraving must be seen thro the colour.

But you know the whole affair ten times better than I can pretend to and as I shall be engaged in Drawing on Sunday I beg you would drop me a line tomorrow by Mr. Leech.

With sincere and affectionate wishes for your happiness and that of the family

I remain as ever

Dear Sir

Your much obliged friend

Alex. Wilson.

Mr. Bartram

P. S. The yellow bird has been coloured with a too dull yellow and the *breast* of the hanging bird may be more of a vermilion.

II. WILSON TO MESSRS. BRADFORD & INSKEEP.

New York, Oct. 2d, 1807.

Dear Sir

I have visited the whole Booksellers of New York distributed your letters and exhibited the specimens of the *Ornithology*, called on a number of gentlemen to whom I had been recommended and having done everything here for both works that I have been able I shall leave New York tomorrow and pass slowly through N. Jersey so as to be home some time early next week

Messrs. Brisbane and Brannan declined engaging for any number of copies of the *Ornithology* but reserved their offers until the first number should be published. The specimens attracted general admiration and few or no subscribers. When I called on Dr. Miller there were two other gentlemen of the faculty with him who desired me to put down one subscription for the College and two or three other gentlemen have subscribed. I have called on Dr. Mitchell three different times but have not yet seen him, Dr. Miller however with whom I breakfasted yesterday has promised to make respectful mention of the *Ornithology* in the *Medical Journal*. As soon as the steam boat returned from Albany I called on Mr. Fulton and mentioned some particulars in the article *Canal* which I was anxious he should see before its publication, gave him your address and presented him with a specimen of the *Ornithology* letter press &c. with which he was much pleased and will call on you sometime next week to examine what they have said of himself under "*Canal*" etc and if not too late to add what observations may seem necessary. This steam boat which

threatens to deprive all the other passage boats and stages of business arrived yesterday forenoon after a passage of 160 miles in 27 hours carrying upwards of 60 passengers at 7 dollars each besides their goods and set off this forenoon at ten o'clock with a heavy sea and strong gale approaching to a storm right in the teeth as we usually say. The wharves and vessels were crowded with spectators many of them dubious of her meeting such a sea but as soon as the machinery was put in motion she shot through the water as steady and level as a line midst the shouts of the multitude

I am with sincere esteem

Dear Sir

Yours

Alex. Wilson.

III. WILSON TO ABBOT.

Philad^a Jany. 23^d 1812

Dear Sir

I this day rec'd a small box containing a roll of Drawings 3 in number which I myself delivered to Dr. Barton also a *small* package directed to Wm. Bartram which has also been sent to him, and 4 Birds viz. the small Crow, female solitary Flycatcher, and the male and female Ground dove all in good order. The Crow and the Flycatcher I had already figured. The other two were very welcome; you will please to draw on me thro Mr. Oemler for the amount of these 4 & any other you may send, at the rate I mentioned, & I hereby empower him to pay you accordingly. Please to send the Chuck wills widow (male) and egg, and the beautiful rare Sparrow you mention, also the striped Wren. I do not know the large green-billed Woodpecker, nor any woodpecker as large as the Woodcock, if you know of such be so good as to send me one. The Slate-coloured ricebird is a species of Grosbeak, about the size of the rice-bird, and the black-headed green warbler is common in the Bahamas and sometimes comes to Georgia. It is not the Hooded Warbler. The Crossbill you mention is I suppose the female of the common one. It is green olive. When I was in Mississippi Territory two years ago I shot the small yellow Warbler with rust coloured spots on the back.

My 5th Volume is nearly ready for publication and I have nearly got through all the Land birds. Any remarkably rare Hawks or Owls will be very welcome particularly the Swallow-tailed. Be so good as to mention the colour of the bill, eyes and legs and any other fugitive parts. I shall also be glad of any anecdote relative to their manners, nest, eggs &c.

I will send you a list of *all* the Land & Water Birds which I have yet to draw, marking those with a *star* that I think you can furnish me with. In the mean time send me the by first opportunity what you can in a strong box directed to A. Wilson, care of Bradford & Inskip, Booksellers, Philada. Let me know if there be anything here which I can do for you and I will do it with pleasure. Can you inform me of the nest or eggs &c of the Ground Dove. I wish you could procure me any particulars of this beautiful little Dove. I presume they are migratory. I hope you will soon get quit of that distressing complaint the *Rheumatism*.

How is my friend Dr. Baldwin & what has become of him. As I will send Mr. Oemler the Volumes 3, 4 & 5 in a few weeks (5 or 6) you will be able to see the Birds I have already described.

I hope you will embrace the *first opportunity* of sending me another package, and write me at the same time by post mentioning the name of the Vessel. Compliments to Mr. Oemler and my best wishes for your health and happiness

With great esteem

Your sincere well wisher

Alex. Wilson

Mr. Abbot

IV. ABBOT TO ORD.

Mr. George Ord
Naturalist
Philadelphia

Scriven County Georgia Mar. 1814

Sir:

I received your Letter last week of Dec^r last and from the great esteem and respect to the memory of your friend Mr. Wilson, who I was acquainted with during his visit to Georgia, I will give you what little information I am able respecting the birds you mention.

The Islands & lower Country of the Southern parts of Georgia is the great rendezvous of the Water birds but owing to the unhappy times chiefly and other circumstances I have never yet had the pleasure of visiting it. At the commencement of the War I had undertaken to make a collection of stuffed Birds & as a complete collection of Drawings of them in colors as I was able for a Gentleman in England but last fall in despair of seeing peace restored, I retired into the Country after having made about 220 Drawings throwed away a large collection of stuffed skins, have entirely laid it aside, & entered into another line of employment, where I am in hopes the mad and destructive Ambition of the rulers of the world can but little interfere.

The Carrion crow builds its nest in the large Trees of the thick swamps over the lakes and the low wet swamps, I have never seen the eggs but don't doubt they are in building the nest similar to the other kind, they retire every evening to the swamps to roost. They frequent the Butcher pens, Commons & the upper part of the Town where the People live who butcher hogs in great numbers & walk about the Streets like Domestic fowls. It is diverting to see when they throw out any entrails & offal of the hogs to see with what greediness they seize & scramble for it often one swallowing one end & another the other & pulling against each other till the strongest prevails, they often steal fresh meat when put out on a shed or other place to dry in the Sun and when a horse or dead cow is dragged out upon the commons they soon light upon it in great numbers, the dogs interrupt them but are serviceable to them in breaking the Animal up for them as I don't believe they themselves can get thro the skin as they begin at the eyes and vent. The Turkey Buzzard is accused of killing young Lambs & pigs by picking out their eyes, but I believe this sort does not. I have not observed a single T. Buzzard in Company with them, but a few of the latter frequent some of the outskirts of the Town & are also very gentle. It is only these that frequent the town & common that are so domestic for if you meet with any of either kind 2 or 3 miles from town, they are wild as the rest in the Country but neither species is by any means a shy bird in Georgia. Having killed one of the *V. aura* in the country as it became putrid the scent attracted several of the *V. atratus* to settle on the trees

round it, but they did not attempt to eat it. This latter species is not so plentiful in the country as about Savannah. Upon killing a beeve in the Country, the scent of the blood immediately attracts them and you will soon see them flying in the air gathering from different quarters to feed on the offal as soon as it is left. This is the case with both species.

The Raven only frequents the back inland Countries of Georgia & can inform you nothing more of it.

Both the Darters I esteem but of one species. I have only now by me a drawing of the male or black bellied but have had them both at one time, in the female I remember that the upper parts was similar to the male only the color and markings more pale and obscure, length 36 inches, 46 in extent, tips of both mandibles serrated pointing inwards. Frequent the ponds, rivers & creeks in the Summer, builds in Trees in Swamps & Islands in ponds &c. makes their nests of Sticks, often builds in the same tree annually Egg sky blue, a nest that was not very large had 2 eggs in it & 6 young ones of different sizes. Commonly sets on a stump in the water of mornings in the spring with its wings extended to the sun from which it is called by some people Sun Bird: difficult to be shot when swimming keeping its head only just above water.

The Purple Gallinule frequents the Rice fields & marshes in the lower parts, is rare, having only met with but 3 specimens, have no doubt but it breeds here is 12 inches in length. When alive, the naked crown or spot above the bill is bright blue, bill red lead, tip yellow ochree. Sides yellow brown. You dont mention the Cinirious Gallinule, about the same size & rarity, the spot or the crown as well as the upper part of the bill & garters red tip of the bill yellow. Is of the color much as the last the toes is larger in proportion than that of the former.

Coot (L 14½ extent 25½) frequents the Rice fields and ponds &c. in Winter, I dont know that it breeds here, if it does it is in y^e sⁿ parts the female is the palest in color, the spot on y^e forehead is a bright chestnut brown. I have been told there is 3 species of Coots in Georgia. I have had several at a time that was asserted to be of 2 species but upon a careful examination cou'd observe no difference (but in size) but what might arise from age or sex.

I can inform you nothing in respect to the *C. glacialis*. I had

a Loon once brought me alive of a plain color like a goose it was 30 Is. in length ext. 53 bill $3\frac{1}{4}$ long very sharp, roof of the mouth serrated. When found by the person in a path after a high wind it made immediately at him and struck him in his leg to the bone, its note or cry very loud and hollow.

The Soree certainly breeds here, there is numbers of the young ones in the Rice fields in the Summer, they differ materially from the Adults, I thought from the neatness of their marks & brightness of color (not usual in young birds) that they were a distinct species, 'till killing one late in Autumn more advanced in plumage convinced me of my mistake but no bird differs more in its growth than the large streaked Heron. I should have never believed them to be the same had I not killed them in the middle stages of plumage.

I will with pleasure give you any information you desire of any other birds or of several species of land Birds I am acquainted with if you desire it that I have not yet seen described in Mr. Wilson's work. Are you acquainted with the female yet of the Louisiana Kite. I have not yet procured one but observed sev^l flying last spring in Company with the males. I tried in vain to shoot one but could sev^l times have killed the males the tail appeared to be barred with brown. And remain Sir, with respect

Your obedient humble servant

John Abbot

George Ord Esq.
Philadelphia

ORNITHOLOGICAL NOTES FROM WESTERN
MEXICO AND THE TRES MARIAS AND ISABELLA ISLANDS.

BY H. H. BAILEY.

HAVING heard from my friend, the late Walter E. Bryant, of a number of business propositions in his section (Western Mexico) I decided to take a trip down and look them over and also do a little collecting. After a hasty gathering together of things for the trip I sailed for San Blas, Mexico, February 11, 1905, on the Pacific Mail Steamer 'City of Sydney,' and arrived at Mazatlan February 17. Mazatlan and the Tres Marias Islands were of particular interest to me from an ornithological standpoint. It was here that the well known ornithologist, the late Col. A. J. Grayson, collected, and later published the first information regarding the ornithology of the Tres Marias Islands and Isabella Island, all of which I hoped to visit before returning to the States.

The rocks forming part of the harbor entrance of Mazatlan, with a number of others lying to the north of it, were covered with Heermann's and Western Gulls and California Brown Pelicans, while numbers of boobies, which I afterwards found to be the Blue-footed Booby, were fishing in a little channel forming a slight break in the north side of the harbor proper. A full day was spent here while the steamer took on and discharged cargo, and from an old darky boatman that spoke English, I learned that it was easier to get to Isabella Island from San Blas than from Mazatlan. Isabella Island was passed on the way down to San Blas, which was reached the next day, February 19. The steamer anchored about two miles off shore, which was reached by a small twenty-foot boat run by the natives. From a native who spoke a little English, I learned that the Platenio Rancho and Don Walterio, as they called Mr. Bryant, were ten miles away, across a small bay, reached in a ten-foot dugout or canoe. So, after some trouble in finding a man to take me over, I bundled my luggage into a canoe and set sail. On arrival at the ranch landing, some two hours later, I found one of the fiercest looking crowds lined up to greet

me I think I ever saw, machetes and knives being everywhere in evidence, so much so that I came near giving up, right then and there, all thoughts of business and ornithology. However, as I was not slaughtered on the spot, I took courage, and after repeated inquiries as to Don Walterio, managed to make myself understood, and with three mosos stringing behind with my luggage, set forth for the ranch house, three quarters of a mile distant, through the banana plantation of which Mr. Bryant was superintendent. The dogs soon announced my approach, and as I reached the shelter of the porch he came out to greet me. Which of the two was the more glad to see the other will never be answered. The rest of the afternoon and evening were spent in telling the latest news from civilized parts, and in getting in return points regarding the birds, the lay of the land, and the business I had come down to transact.

San Blas is a small coast port in the Territory of Tepic, with about three thousand inhabitants, in latitude 20° – 21° and longitude 105° – 106° . The town, which consists of a few stores, government buildings and a number of brick and wooden houses of the better class, besides the regular palapi houses of the natives, is situated close to the beach at the mouth of the estero which forms all the harbor the place affords, and is available for only the smaller craft. The surrounding country is level for a few miles and has been cultivated to some extent, but most of the crops come from the Santiago district, some twenty miles away on the banks of the river of that name. About five miles northeast of the town the mountains begin, running parallel to the coast line and swinging to the south on the other side of the bay, directly back of the banana ranch. Here are two of the highest peaks in the whole range; they are the compass of the San Blas sailor, as will be shown later on in my story. The estero forming the harbor for San Blas is one of the three mouths of the Santiago River, and runs northward parallel to the coast line for about fifteen miles until it meets the main channel of the river. This river and its banks, which at low tide are hard black sand, offer many opportunities to the ornithologist in the way of water birds, while the natives gather from the bushes, partly covered by water at high tide, a small oyster, relished by native and tourist alike, and which forms one of the staple articles of food for that section and is also shipped inland.

A number of small groves of cocoanut palms give shade to the town and supply nesting places for parrots, woodpeckers, crows, blackbirds, and orioles, and a roosting place for the ever present vultures which, with the aid of the chickens and hogs, take the place of a sanitary department. The land that is or has been cultivated in years past has on it a few scattered trees which afford nesting sites for some of the commoner birds, while the bushes and undergrowth bordering the roads are literally alive with quail, doves, parrots, parakeets, Groove-billed Anis, trogons, and numerous small birds, which from sunrise till about 7.30 A. M. make one think all the birds in the whole Territory are congregated there. With the two mouths of the Santiago River, one at the front of the town, the other to the south of it, and the good shore line of sandy beach, one can get all he desires in the way of water birds; and, taking it all in all, this particular section is certainly an ideal place for collecting. But with all these inducements, don't think for an instant that all you have to do is to walk out and load up with land and water birds without any trouble. Along the beaches the mosquitoes and a very small species of sand fly make you long to get back to the net shelter in your room, while the same little plagues attend collecting in the fields, with the addition of the black ant, which stings with its tail, and the "weaners," a very small species of tick — so small as to be hardly distinguishable except when in bunches of thousands on your clothes. These weaners are on every blade of grass and bush, and one has to change his clothes immediately in coming in from the field, smoking them thoroughly being about the only way to get them off. About all the collecting must be done from day-break to 7 or 8 o'clock, on account of the heat, and after about 8 o'clock all the birds have retired to the undergrowth for the day, from which it is almost impossible to dislodge them or to get one should you shoot it. The rainy and hot season is said to last from about June 15 until the 1st to the 15th of November, during which period this section is visited by destructive thunderstorms or chubascos.

From February 18 until March 11 a little collecting was done on and around the banana ranch, with a few days at San Blas, and during this period the majority of the commoner birds were secured. An estero at the foot of the mountains and back of

the ranch house engaged my attention for a number of mornings. The trees and palms overlapped, forming a complete canopy for the streams, and it was down this shady way that the birds were wont to pass daily in their search for food, at about 8 A. M. Although it seemed as though thousands passed me, I was never able to find out where they went on reaching the mouth of the estero.

While in San Blas, on March 1, I was fortunate in meeting Mr. Geo. Beermaker, manager for the Union Fertilizer Company of Los Angeles, Cal., and as he was sailing for the Tres Marias Islands that night, I engaged passage and board on the island for the trip. When we left, at 10.30 P. M., the wind was fair and light, as it always is at night at that time of year, and after a good night's sleep, rolled up in a blanket on top of the cabin trunk, we arose to find the islands still many miles away. That day and most of that next night we were rolling on the long easy swells without a breath of air to fill our sails, and bird life seemed also to have vanished with the wind. A few Heermann's and Western Gulls came near the boat, and a few pairs of Man-o'-War Birds and Red-billed Tropic Birds were sailing gracefully high in the air. After beating back and forth in the light wind that sprung up toward daybreak, we arrived off White Rock about 5.30 A. M. and cast anchor. Some fifteen men and two women were already settled in palapi houses on the small stretch of sandy beach at the foot of the highest cliff, and the white tents of the 'boss' looked very inviting at that hour of the morning. We landed in a small canoe, reaching the beach without getting much wet, and the little twenty-ton schooner 'Concha Sofia' set sail for San Blas, to return for us in about ten days, with supplies, mail, etc., from the mainland. White Rock lies almost directly between Magdalena and Cleofa Islands separated from the latter by a narrow rough channel of about half a mile in width, and about ten miles from the former, in longitude 106°-107°, latitude 21°-21½°. As one would infer from its name, this island is solid rock, the highest point of which is about 200 feet above sea level, and the top for the most part is a nearly level plateau. The walls rise almost perpendicularly from the sea, and outside of a small stretch of sandy beach on which our camp was placed, it is almost impossible to land. The natives had already

cut a narrow trail to the top, about nine inches wide, and while they ran easily up and down it, most novices perspire freely from fear the first few times of ascent and descent. It was not long, however, before I could go up and down without this inconvenience, but I was never able, with my heavy boots, to do so with the ease that the natives did with their bare feet or light leather soles.

After seeing my stuff safely stored in the tent, which Mr. Beer-maker most kindly shared with me, I set out for the top of the island, and after the experience just related in connection with the trail I gained the top. On casting my eyes about, rather a novel sight met my gaze. A gang of natives were picking up chunks of guano, a few pairs of Man-o'-War Birds floated lazily overhead, screaming Red-billed Tropic Birds circled the rock, Boobies were coming and going to their roosting places on the sides of the cliffs, and on either hand were the wooded islands. The rest of the day was spent in a systematic search of the island, and I returned to camp well satisfied with my first day's work. The next day work commenced in earnest, numerous birds, lizards and photographs being secured, and out of a cover from a dry goods box, supported by four sticks, a skinning table was erected under the shelter of the overhanging cliff.

As White Rock contained no water for drinking and cooking, and as the only wood was the drift wood the waves brought in, we were compelled to send the canoe to Cleofa Island about every third day for water and wood. I decided to accompany the canoe party on its first trip after my arrival, and, with gun, collecting pistol, and camera, left camp about 6 A. M. The stream in Cleofa having the most water and nearest to our camp came down from the hills on the seaward side of the island, and this necessitated our landing through the surf. The landing was successfully made, and after a full day spent on the island I returned to the canoe loaded down with birds, every pocket of my skeleton coat filled, and some dozen or more good photographs.

But no such good luck attended our departure. On the first attempt to launch the canoe we were swamped by the breakers, and the canoe being overturned, I lost my gun, my birds were spoiled for specimens, and my camera was nearly ruined. On a second trial, however, we passed safely through.

Three weeks were spent on the "Rock," during which time a number of Brewster's Boobies were caught while roosting at night on the top of the island, and Red-billed Tropic Birds were secured in the daytime while on their eggs or with their young. A series of both species, with young of the latter, were put up.

Another trip was made to Cleofa Island in the canoe, and this time we fared as previously, only everything was tied in so that we lost nothing except all the small birds I had gotten with my collecting pistol, with the exception of one Cardinal, which is now in my collection and whose plumage still shows the wetting it got.

During our stay at the Rock the schooner in which we came was wrecked at San Blas by a 'chubasco' when ready to start on her return trip with mail and supplies, and we made our return in a leaky open twenty-foot yawl boat sent out in place of the wrecked schooner.

A few days were spent at Tepic, the capital of the Territory and some fifty miles inland by stage coach. Here I managed to get my camera partly fixed, my watch repaired, and collected a few birds, besides attending to other business I had on hand. From here a trip was made to Santiago by stage, some twenty miles, and it was my intention to go down the river from here to San Blas by canoe, but it proved impracticable and I returned by stage.

On arriving at San Blas I secured a boat and crew and on April 6, at 8 P. M., set sail for Isabella Island, some forty miles northwest of San Blas and twenty miles off the coast. My boat this time was an open twenty-five foot ship's yawl, well caulked, and manned by a captain and two boys. The wind was, as usual, light, but by the next noon the captain pointed out an island and said it was Isabella.

Later on I discovered it was only one of the Tres Marias group, and it was then that I learned that he could not read the compass and was really steering by taking observations by the two tall peaks back of the Platenio Rancho. On returning later to San Blas I found that these peaks were the compass of most of the sailors in that section. The second night out a 'chubasco,' somewhat in the form of a waterspout, passed within a quarter of a mile of us, and the next morning, Sunday, the 8th, found us still about fifteen miles from the island with no breeze, and it was not

until 3.30 P. M. that we landed on the little stretch of sandy beach in the bay on the south side of the island. All during this day we were in sight of large flocks of birds following schools of fish; those which I distinguished were Brewster's Booby, Red-billed Tropic Bird, Heermann's Gull, Man-o'-War Bird, Black Petrel, and Wedge-tailed Shearwater. A number of puffins and small gulls were also seen, but could not be identified.

Isabella Island is three quarters of a mile long by about half a mile wide, 150 feet high at its highest point, with a crater of an extinct volcano almost in the middle of the island. It lies in longitude 105°-106°, latitude 22°-22½°. The northeastern side of the island is covered with long grass about sixteen inches high, while the southwestern side is high and rocky, with stunted trees or bushes scattered here and there. The central part of the island, with the exception of the crater, is low and rocky and covered with bushes, which also cover the sides of the crater. After landing our stores and anchoring the boat out in the little bay, the crew pitched camp, making a tent out of the mainsail and using the jib for a floor covering to sleep on. Nearly four days were spent on the island, during which time I was busily engaged in skinning birds, taking photographs, and collecting eggs of the Blue-footed Booby, Red-billed Tropic Bird, and Man-o'-War Bird. A small Tern — the Pacific Sooty — had already bred and gone, as had also the Royal Tern. One day the crew found a nest of young Great Blue Herons which I had overlooked when going over the island. As the man who had supplied us with provisions had somewhat neglected us, these young birds came in well for food, and were relished by us, as were also fresh eggs of the Blue-footed Booby and Man-o'-War Bird, which we made into omelets. On the afternoon of the third day one of the boys set the long grass on the northeastern side of the island on fire, which burned for twenty-four hours and threatened to drive us from the island. Luckily at this time there were no birds breeding on that part of the island, and by the time we left the fire had burned itself out. With the exception of the boat drifting ashore on the sandy beach one stormy night, which caused no damage, there were no mishaps or startling experiences while on the island. About noon of the 12th we started back for San Blas, and as we had a very heavy fair wind

we made port in about eight hours, stopping on the way to look over a large white rock called Piedra Blanca, in hope of finding some birds breeding there. But in this we were disappointed, as the fishermen were constantly visiting the rock, and while the birds roosted there, none were found breeding.

On my arrival at San Blas I was met by the Capatas of the rancho, who informed me that Mr. Bryant had been very ill ever since my departure, and begging me to come over to the rancho at once, which I did. On arriving at the house, I found him in quite bad shape. As he had had little nourishing food proper for a sick man for some seven days, I at once killed some Chachalacas and doves to make soup of. The next nine days were spent attending to Mr. Bryant's wants, blowing eggs, and collecting a few birds, and on the 21st of April, after packing up his belongings I managed to get him aboard the steamer bound for San Francisco. From this time on to the 3d of May, a few specimens were collected around San Blas during spare time, and on the afternoon of that date I came down with a bad attack of fever, called "colentura" in that section. This laid me up for nearly ten days. On the 17th I caught the steamer for San Francisco. The following day was spent at Mazatlan, and eight days later I arrived off the quarantine station in San Francisco Bay. At this season of the year extra precautions were being taken to guard against yellow fever from the south, and after a rigid inspection I failed to pass and was not allowed to land, being sent to the quarantine station at Angel Island. After remaining here until the authorities were satisfied that I would not come down with yellow fever or any other contagious disease, I was allowed to depart and was sent over to the city by a tug. On the way to the hotel I learned of the death of my friend Mr. Bryant, this being the first news I had heard of him since bidding him good-by at San Blas. Poor Bryant! He was a devoted ornithologist, and well do I remember his last words to me as we parted on the ship: "Bailey, we will get a whack at the hummers down here yet."

Thus ended my trip, which was rather successful in a business way and, even counting hardships and mishaps, was enjoyable, and added many fine specimens of birds, eggs, and a few mammals and insects to my collection.

The following is a list of the birds collected or observed during this trip to San Blas and the neighboring islands.

Annotated List of Birds.

1. ***Uria troile californica***. CALIFORNIA MURRE.—Large numbers of these birds were seen from the steamer when going south, and for at least a day before arriving at the Golden Gate coming northward.

2. ***Larus occidentalis***. WESTERN GULL.—These birds were common all during the trip, following the steamer both going and coming, and also common on the beaches of the mainland at and near San Blas. On White Rock and Isabella Islands, flocks of from twenty to thirty were ever present while I was skinning birds, and fought for the bodies as I threw them out to them. While I was not engaged in skinning specimens, these birds strutted around camp picking up scraps, and also followed me as I walked over the islands, and if I scared a parent Booby or a Man-o'-War Bird from its nest, not many seconds elapsed before the gulls had their eggs. No nests of this species were discovered on any of the islands or the mainland.

3. ***Larus heermanni***. HEERMANN'S GULL.—These birds, like the Western Gull, were ever present on the shores of the mainland, especially near the mouth of the estero, also on both Isabella Island and White Rock. Their habits were similar to those of the Western Gull as regards waiting for bodies to be thrown out to them, stealing eggs, etc., and occasionally they followed a Booby and tried to make it disgorge. One day while sitting on a rock in front of camp at White Rock waiting for lunch, I saw one of a pair of Great Rufous-bellied Kingfishers fishing from a rock about twenty feet further on. As it returned to its perch from one of its little plunges, a Heermann's Gull swooped down and tried to get its food before it could be swallowed. The kingfisher dove to the water and at each descent of the gull, dove below, these tactics being kept up until the gull got disgusted and left. From the actions of some pairs on a rock to the north of Isabella Island I am sure these birds were breeding there, and also on a rock off Cleofa Island, neither place being accessible.

4. ***Sterna maxima***. ROYAL TERN.—This large tern was seen on the beaches of the mainland between San Blas and the Platenio Rancho in small flocks of from four to eight. A number also were seen on Isabella Island, where I am positive they had bred previously to my arrival on April 8, as I found a number of nests with egg shells near by, placed on the northern edge of the island. Being very familiar with the eggs of this species I am sure I was not mistaken in their identity.

5. ***Sterna antillarum***. LEAST TERN.—For about ten days around April 12 these little terns were common at the mouth of the estero at San Blas, where they were feeding upon schools of small fish which came down with the current. At the time of my departure, May 17, they had entirely disappeared, going northward.

6. *Sterna fuliginosa crissalis*. PACIFIC SOOTY TERN.—I had been told by both the captain of my boat and Mr. Geo. Beermaker, that on the northern grassy slope of Isabella Island I would find thousands of a small white gull breeding, but on going over the ridge I found to my sorrow that they had bred and gone. Everywhere scattered amongst the tall rank grass could be seen the well worn nests of the season, and so thick were they that we could hardly step without treading on a nest. But what puzzled me most was the number of skeletons of dead birds scattered everywhere about. The skeletons were almost complete, with the long wing feathers, tail and head feathers still in place, so I presume that either the gulls or crabs and lizards had eaten everything clean. If these were old birds, and the remains proved clearly that they were, what could have killed them? and what had become of the eggs? as I was unable to find a single nest with even spoiled eggs in it. I should estimate that at least five hundred dead birds were seen, and the cause of their death will have to be explained by some one arriving in time for, and staying through, the breeding season. Mr. Beermaker informed me that when visiting the island the previous year, the last of March, these birds were just laying, but as I paid my visit to their nesting site on April 8, they must breed earlier some seasons than others. A single skeleton was saved and is now in my collection. Large flocks of these terns were seen off Isabella Island, following schools of small fish, and a few roosted on the rocky face of the southeastern end of the island during the daytime.

The cries of this bird, with the squak of the boobies, were most noticeable after dark, and as they could be seen and heard going and coming at all times of night, they probably gather as much food by night as by day.

7. *Puffinus cuneatus*. WEDGE-TAILED SHEARWATER.—A number of birds which I took to be of this species were seen between Cape St. Lucas and Mazatlan, but none were taken, neither were they seen near the coast of San Blas nor around the islands, excepting Isabella.

8. *Oceanodroma melania*. BLACK PETREL.—This species was very common between the mainland and islands, and from what I learned they must have bred on the lower end of Cleofa Island, and on White Rock later in the season, although no eggs were taken during my stay at the latter place.

9. *Phaëthon æthereus*. RED-BILLED TROPIC BIRD.—This beautiful bird I first found breeding on White Rock, and during my stay of three weeks, a number of cavities containing their nearly fully fledged young were discovered, and also fresh eggs. On Isabella Island, April 8 to 12, nearly full grown young and a number of fresh eggs were also found, so I imagine they have two settings. In every case an old bird was found in the cavity with young or eggs, and from a broken and sucked egg I found in one, I am inclined to think that the Western or Heermann's Gulls even entered here for food. If such is the case I know they had a hard time

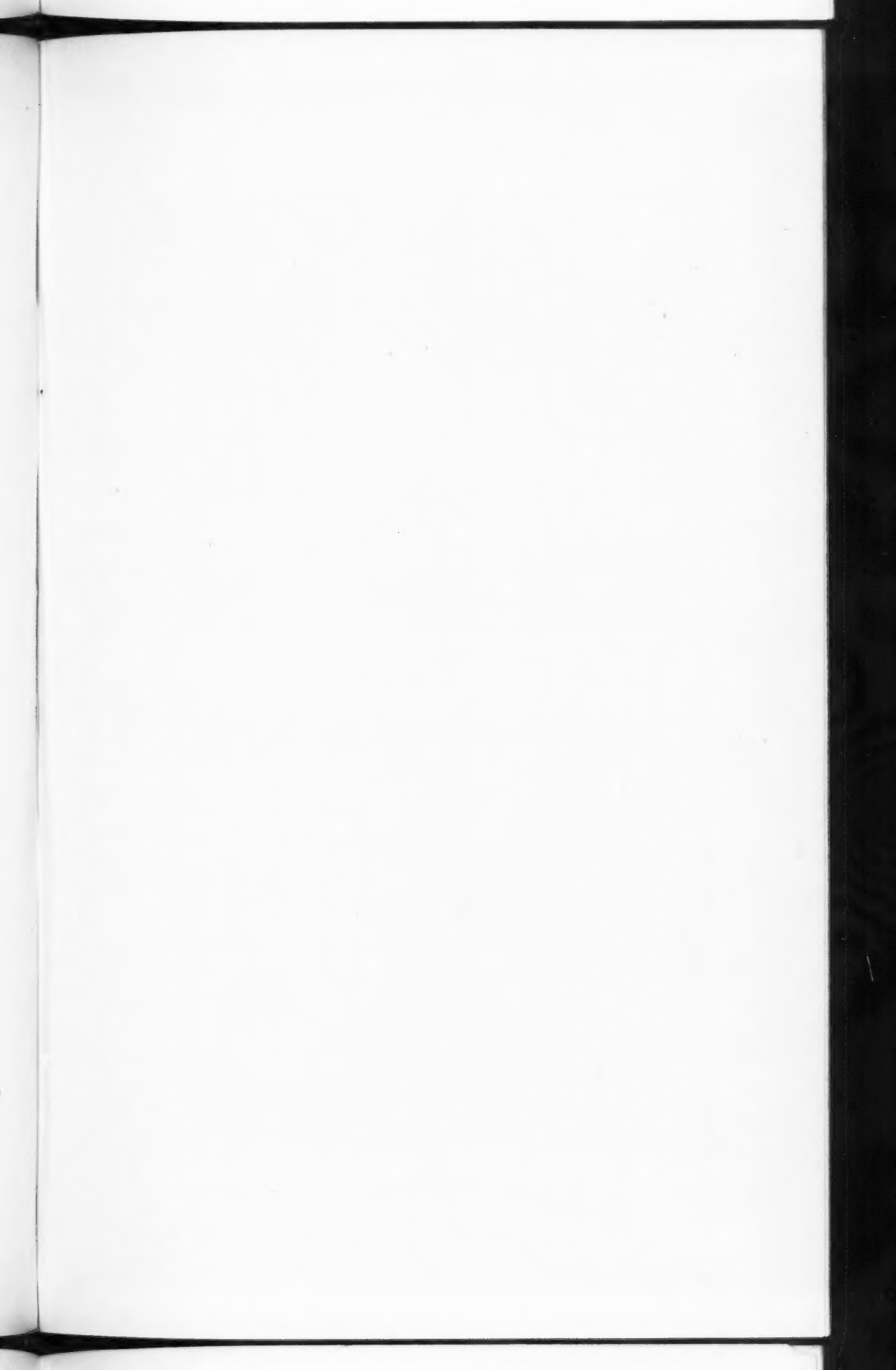




FIG. 1.—GROUP OF BLUE-FOOTED BOOBIES.
Isabella Island.



FIG. 2.—BLUE-FOOTED BOOBY, FORCIBLY REMOVED FROM EGG.
Note ruffled feathers on neck and wing. Egg in foreground. Isabella Island.

to get it, as I found quite often to my sorrow that the Tropic Bird's powerful, sharp beak would penetrate through my canvas hat, or if the cavity was large enough to permit of it, my heavy canvas jacket. While one of the old birds is always on the nest and gives its shrill scream at the approach of danger, thus making the cavity easily located, the young or egg is not so easily reached as one would think. Only in one case did I find an old bird on its nest where I could photograph it, that case being under a ledge of a cliff and about eighteen inches from the face. The majority were in cavities from two to three feet back, and it takes quite a lot of manœuvring to get either bird or egg out. The majority of the birds I found were in poor plumage, the constant going in and out of the small nesting cavities having worn the beautiful long tail feathers until some of the ends had broken off, while others captured had none or new ones just growing out. Their flight is not unlike that of the terns, and the rapid wing beat and long tail feathers make this bird readily distinguishable from any other at a great distance. Both birds take turns in incubating and caring for the young, and during this period the bird in the cavity is fed by its mate. The female, and sometimes both birds, is found in the cavity for three or four days before the single egg is deposited. While graceful on the wing this bird is most awkward on its feet, and when alighting to look for a nesting site drags itself along like a bird with both legs broken. The coloring of a series of eggs in my collection varies from a creamy dirty yellow ground color, spotted with a darker yellow, to a dark red ground color, spotted with a darker red.

Two cases of removing their young happened while I was on White Rock, both of them similar. Two old birds and their single young were found in a cavity, and I took one old bird to skin that night, expecting to get the remaining parent and young the next morning. On returning the next day great was my astonishment to find the two birds gone, and still further was it taxed when I found, after careful search, the two birds in another cavity twenty to thirty feet away.

9. *Sula nebouxii*. BLUE-FOOTED BOOBY.—This species I did not find south of Isabella Island, where they were breeding abundantly. Few were seen fishing to the south of the island, and while the largest colony was situated on the beach of the cove on the south side, they invariably passed out of the entrance and, circling the island, did their fishing northward. I am inclined to think that these birds never nest near colonies of *Sula brewsteri*, nor do the two species fish over the same area. I should be glad to get other persons' opinions on this subject. At the time of my departure from Isabella Island, April 12, a number of pairs of *Sula brewsteri* had arrived and had started to build nests on a small rocky point forming part of one arm of the bay on the south side of the island, but I am inclined to think their arrival here to nest was caused by the treatment they had received on their own nesting grounds—White Rock. The cause of this departure will be explained later on under that species.

All around our camp, which was pitched under the low bushes bordering the little bay, were pairs of boobies, one or the other of the pair covering the eggs while the mate stood close by. This, however, was during the middle of the day, the fishing being mostly done before ten A. M. and after four in the afternoon, during which time one or the other of the birds always remained on the eggs to keep the gulls from stealing them. The poor boobies had a hard time of it here, as the Man-o'-War Birds nested just back of them in the bushes, and lucky was the booby who passed in the entrance of the bay without having to disgorge part, or maybe the whole, of its day's catch to this robber. Numbers of nests were on the sandy beach just above high tide, while others were still further back under the shrubbery and below the Man-o'-War Birds, and still another colony was situated on the top of the rocky southwestern side of the island. All the birds were very tame, and I think had not been molested since the expedition of the Biological Survey in 1897, as Mr. Beermaker on landing in search of guano deposits in March, 1904, had not found them breeding at that time, nor had he disturbed them in any way. When I first started in to get a series of eggs, I used my foot to remove the booby from them, but after the first few attempts I found that the sharp beak whenever it came in contact with my leg drew blood, and almost penetrated through my cowhide boots, so I soon abandoned this method. Two eggs were generally the complete set and but three sets of three were discovered while on the island, and in some cases highly incubated *single* eggs were found. In case of the latter I am inclined to think the gulls had stolen one of the eggs after incubation had commenced. No nest was made, a slight hollow being scratched in the sand or earth, while those on the rocky side of the island simply deposited them on the bare rock or on the little drifted earth that happened to be on its surface. During the moonlight nights these boobies could be seen going and coming, and I have no doubt their best catches were made at this time, as they were then unmolested by the Man-o'-War Birds. Single fresh eggs gathered by the crew were made into omelets, but the flavor was rather rank.

10. *Sula brewsteri*. BREWSTER'S BOOBY.—This species was common along the coast at San Blas, roosting on the small rocks near the shore and on a large white rock some ten miles west of San Blas, called Piedra Blanca, but on none of these rocks did they breed. All the birds in this section belonged to the colony breeding on White Rock, and many traversed the sixty miles back and forth daily from their nesting and roosting place on the Rock to their feeding grounds near the coast. Never did I see a Blue-footed Booby in this section; hence my assertion that the Brewster's Boobies went east and south from their colony to fish, while the Blue-footed Boobies went northward. Thousands of these boobies were roosting on White Rock and some few had been laying previous to our arrival, but as the workmen had robbed the nests as fast as eggs had been deposited, the birds had become disgusted and stopped laying

for the time being, although they still continued to use the rock as a roosting place. It was the guano from this countless flock of birds, which probably had been breeding there for centuries, that the men were engaged in collecting. During the day when not fishing they roosted on the sides of the island and when the men left the top to come down to supper at six, they returned to the top of the island to roost and make their so-called nests. Many an evening, as I sat at my skinning table or in front of camp waiting for supper, have I watched these birds as they came in from their day's fishing excursion. From about five o'clock on, as far as the eye could reach, could be seen small flocks of from four to twenty making for the island, and after circling half around it, would generally alight on the top, but a few preferred to roost in the caves in the cliffs of the island.

Numerous visits to the top of the rock were made at night after specimens, and a series of some seven pairs were procured by walking up to them while asleep and selecting individual birds as I chose. I had seen colonies of birds before, but none like this, and the sight certainly made one take a long breath. The whole island surface was literally covered with birds, some with their heads and necks stretched out along their backs sound asleep, some picking up bits of bone, long wing-feathers, grass and small chips of stone and guano to form nests with, while others sat on little piles of heaped-up guano with the neck stretched upward watching the approach of a bird about to alight, as if hoping it might be its mate. They always seemed to roost in pairs, each pair always separated, as were also the nests, by enough space to be out of reach of their neighbor's sharp beaks. It was truly a weird sight in the starlight, and the low hissing sound from the birds that were awake, with the shadowy forms floating through space, reminded one of a grave-yard.

One of the most amusing sights I ever saw was the regular "Mexican cock fight," between males of this species. This combat was, I imagined, over the unmated females, or some single male trying to steal a female from another, and started in this fashion: A male in alighting commenced to strut around, craning his long neck and uttering a low hissing sound, and on coming near to some mated pair, or some other male also trying this mode of courting, would suddenly stop. Both males now squatted low on their short legs, their breast sometimes touching the ground, while their long necks were craned upward in a double bow. No regular cock fight could be more complete or interesting. While they did not use their feet, their long wings and sharp beaks were thrust out at their rival, and occasionally they met with open beaks which became locked together in the struggle. Sometimes one would catch the other by the wing, while he retaliated by getting his adversary by the neck, these cases often proving fatal to one or the other of the combatants. Over all this scene was the ever present smell from the guano, which one must get accustomed to if he would study bird life on an island in the Pacific. Birds with broken wings as well as those with little strength were at daybreak quickly put out of the way by the Caracaras, and the gulls made part of their morning meal of these poor unfortunates.

What a sight this must form when all have eggs or young! Now as the men were gathering the guano from all over the top of the rock, and had, on their arrival, driven off the birds and taken their eggs, and were still making a systematic search every morning for fresh eggs for eating, the colony had been, for the time being, driven from their old nesting place, and few birds had laid during my visit of three weeks on the rock. It was this breaking up of their old-time home that led me to think that some of the birds had migrated to Isabella Island, some thirty miles away, as the only suitable near-by place left to them as a breeding place. As the men expected to be through with the guano gathering by the first of June, possibly the birds remained around the rock and bred later on.¹

11. *Phalacrocorax mexicanus*. MEXICAN CORMORANT.—Numbers of cormorants that I took to be of this species were seen off the rancho, fishing near the surf, and were found to have bred at Tepic previous to my visit there, and also in the lagoons back of San Blas.

12. *Pelecanus californicus*. CALIFORNIA BROWN PELICAN.—These birds were common at San Blas where they sat and fished from the rocky breakwater forming part of the harbor entrance. They were also common off the beach in front of the rancho, often coming on to the beach and seemingly extracting food from the foam cast up by the waves. A few pairs were seen while I was on White Rock, and they probably bred on Cleofa Island later on, as they roosted there. Two pairs were seen while on Isabella Island but none were found breeding. I am inclined to think they came here to fish from the mainland, near the mouth of the Santiago River, where, I was told, there was a large breeding colony.

13. *Fregata aquila*. MAN-O'-WAR BIRD.—This bird I found common everywhere along the coast and islands, in all cases indulging in their well known habit of harassing the boobies to obtain their supply of food. From what I was told by the natives, the birds around San Blas bred on the bushes in a lagoon some miles down the coast, while I found them breeding in great numbers on Isabella Island. The nests on the island were placed on the top of the bushes or on crotches of limbs, the nests being a loosely made platform of sticks and twigs, with generally a few straws or grasses on the inner surface. In some cases the nests were not more than from eighteen inches to two feet above the ground, as on the west side of the island where the bushes are low and stunted, while on the south and eastern sides they were sometimes placed as high as twelve and fifteen feet above ground, the bushes and scrubby trees here permitting of it. At the time of my visit the majority of these birds had eggs, one being a complete set. A few young birds were, however, found on the western side of the island, and it did not take the hot sun

¹ Aug. 14, 1905. Mr. Beermaker, who has just arrived in Los Angeles, informs me that the boobies did not lay again while the men remained on White Rock.

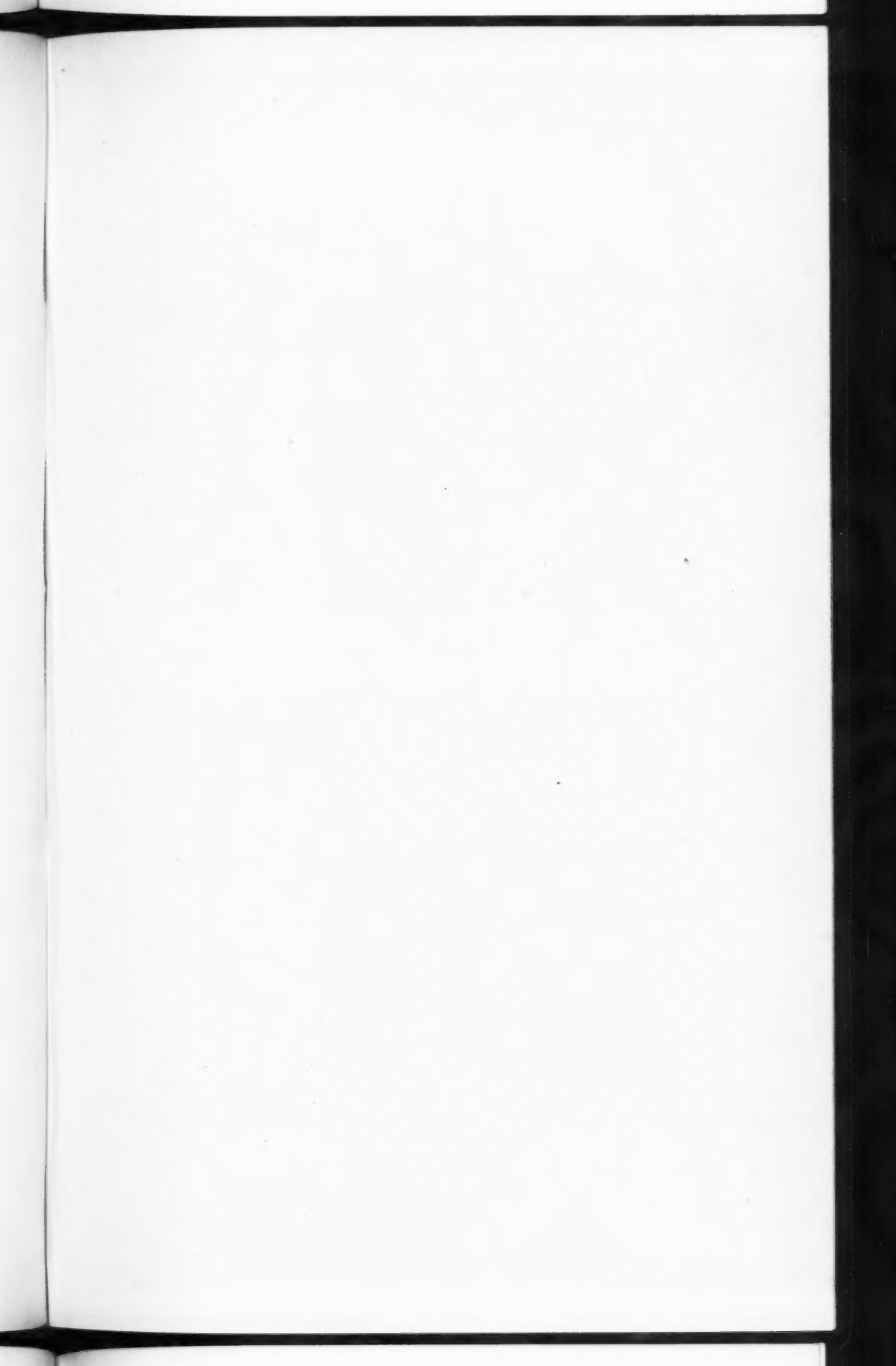




FIG. 1.—AN OLD MAN O' WAR BIRD AT HOME.
Isabella Island.

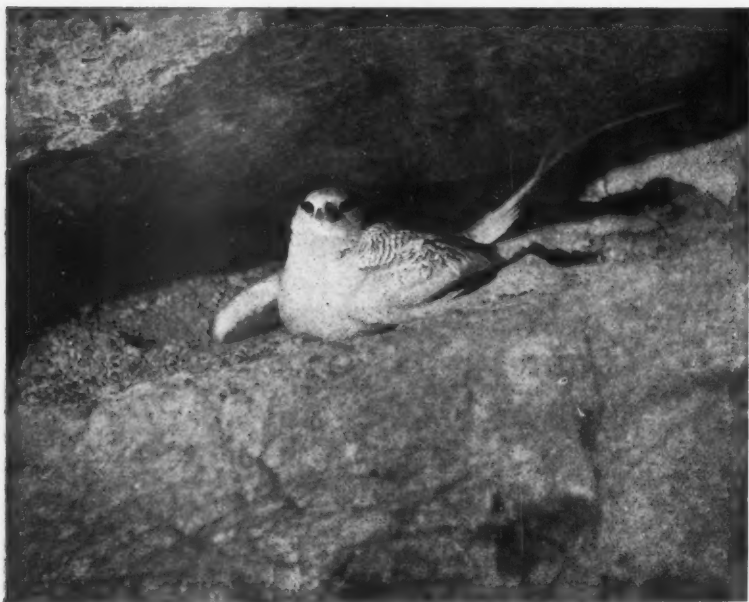


FIG. 2.—RED-BILLED TROPIC BIRD.
Covering its egg with one wing. Isabella Island.

long to kill any small young that the parents left unsheltered for even a few moments. The majority of these birds were very tame, allowing one to approach within a few feet of them.

Great numbers of dead birds, hanging from the bushes by wings, feet or heads, were scattered over the island, the cause of which I discovered when flushing one from its nest. Their short legs and extremely long wings make it a hard matter for the birds to rise from their nests, especially so when the nest is placed on the top of the bushes, and their wings come in contact with other branches in their effort to rise. A number of times as I watched them in their attempts to alight on or depart from their nest, I saw them become entangled in the foliage, from which position they were unable to rise. The odor from the dead birds, with that given out by the birds themselves, was far from agreeable.

I found that the large eggs of these birds required delicate handling in blowing, numbers of them being broken while using air pressure that any small egg the size of a robin's would stand.

14. ***Nettion carolinensis***. GREEN-WINGED TEAL.—I saw two pairs of this duck in the arroyo while at Tepic, and the local sportsmen informed me this bird was very common there earlier in the season, at this time (March 30) nearly all having migrated north.

15. ***Spatula clypeata***. SHOVELLER.—A flock of four were seen at San Blas.

16. ***Aythya affinis***. LESSER SCAUP DUCK.—A flock of birds that I took to be this species were seen on both visits to Mazatlan, where they were very tame and nearly always in the wake of small vessels anchored in the inner harbor. A few were also seen in the estero at San Blas.

17. ***Guara alba***. WHITE IBIS.—Very common around the estero at San Blas, and also on the lagoon back of the town.

18. ***Plegadis guarauna***. WHITE-FACED GLOSSY IBIS.—Numbers were shot by my friend Mr. Beermaker, and also by the local Doctor, the latter being about the only ardent sportsman in that section.

19. ***Ardea herodias***. GREAT BLUE HERON.—A few pairs were seen fishing along the shore in front of the banana ranch, and young birds were brought in by the crew while we were on Isabella Island. I am sure they bred there, as I also saw old birds fishing at the northern end of the island. None were seen while at the Tres Marias Islands.

20. ***Herodias egretta***. AMERICAN EGRET.—It must have been this bird about which the natives at San Blas had so much to say, stating that its plumes sold for \$40 gold an ounce. They told me how some men from San Francisco had come down for plumes, and meeting with much success one season, returned the next season prepared to slaughter every one in the country. After building an ark, in which they worked the esteros for some weeks, they were stopped by the Mexican authorities and their stock confiscated. While I did not take any specimens myself, I am confident that the bird described by the natives was this species.

21. ***Fulica americana***. AMERICAN COOT.—Numbers of these birds

were seen, and one was shot in the arroyo at Tepic where at the time of my visit they had half grown young.

22. *Tringa minutilla*. LEAST SANDPIPER.—A few stray birds were seen at the mouth of the arroyo and on the beach in front of the banana ranch. While on my way back from Isabella Island a number of flocks which I took to be this species passed our boat going northward.

23. *Ereunetes occidentalis*. WESTERN SANDPIPER.—A single bird of this species was seen at Isabella Island. It evidently had become tired and had dropped out to rest from a migrating flock, no other specimen being seen while on the island.

24. *Totanus flavipes*. YELLOW-LEGS.—During March these birds were quite common at low tide on the estero flats at San Blas, but by the last of April all had disappeared, although a few other waders remained.

25. *Symphemia semipalmata inornata*. WESTERN WILLET.—Common on the estero flats and beaches during all of my stay in that section, and one specimen was also taken on the beach in front of camp at White Rock, March 4.

26. *Numenius hudsonicus*. HUDSONIAN CURLEW.—Quite common and tame on the estero flats at San Blas, numbers being shot by Mr. Beer-maker, the local Doctor and myself, and were relished greatly in that section of the country where good meat is scarce.

27. *Squatarola squatarola*. BLACK-BELLIED PLOVER.—This bird, like the preeding species, was also common on the estero flats, numbers being shot for food.

28. *Aegialitis nivosa*. SNOWY PLOVER.—Two flocks were found on the sandy beach between San Blas and the banana ranch and were very tame, allowing me to come within two or three feet before running off to hide. The beach was an ideal spot for breeding, and they probably remained and bred there.

29. *Hæmatopus frazari*. FRAZAR'S OYSTER-CATCHER.—Birds that I took to be of this species were fairly common on the beaches of the mainland near San Blas, and also on White Rock and Isabella Island. A single specimen shot on White Rock before the loss of my gun, corresponds very closely to *H. palliatus*, but not sufficiently so to refer it to that species. Birds collected by the Biological Survey Expedition of 1897 (see North America Fauna No. 14, Natural History of the Tres Marias Islands, Mex.), both on the mainland and at Tres Marias Islands, were recorded as *H. palliatus*, and possibly those I saw on the mainland were this species.

30. *Jacana spinosa*. MEXICAN JACANA.—Very common in the arroyo at Tepic, and from the birds shot and examined it was evident that they had already bred there previous to my visit on March 30.

31. *Lophortyx douglasi*. DOUGLAS QUAIL.—These handsome little birds, not unlike the California Quail except in color, were very common around San Blas, and as there were few to shoot them, they were quite tame. Flocks of from ten to twenty were flushed a number of times, and

while dusting themselves in the paths they could be approached to within six feet, or even less, before they would take to the brush. This bird was rather scarce near Tepic, as compared to the coast region. Up to the time of my departure, May 17, they had not bred and few had paired.

32. *Ortalis vetula macalli*. CHACHALACA.—To the right of the ranch house in a small ravine at the foot of the hill stood a tree which during my stay in that section had a green fruit on it about the size of a grape. It was this fruit that the Chachalaca seemed to especially like, and nearly every morning a flock of from six to ten could be found feeding there. The flesh is similar to that of the wild turkey, and the majority of the specimens secured were made into soup during the last illness of W. E. Bryant. Another large flock was seen in a dense jungle between San Blas and the rancho, but up to the time of my departure, May 17, none were found breeding.

33. *Columba flavirostris*. RED-BILLED PIGEON.—Few large flocks were seen, the majority being in flocks of from four to eight, and they always kept well toward the top of the trees. These birds, I was told, breed in the tall timber on the mountain sides back of the rancho, but none were found breeding up to May 17.

34. *Columba flavirostris madrensis*. TRES MARIAS PIGEON.—A few were secured on Cleofa Island, March 10, but after the drenching caused by the canoe upsetting they were hardly fit for the cabinet, so the specimens were eaten with relish by both Mr. Beermaker and myself. This was really the only bird that could be called wild on the islands. They were always found in pairs, and generally in the tops of the tallest trees. No nests were found, as it was too early for any of the land birds to be breeding except the Double Yellow-headed Parrot.

35. *Zenaidura macroura*. MOURNING DOVE.—Quite common on the mainland around San Blas, always keeping on the ground under the dense undergrowth. No nests were discovered up to the time of leaving.

36. *Melopelia leucoptera*. WHITE-WINGED DOVE.—This dove was quite common around the rancho, frequenting the banana grove in search of food, which it secured around the stems of the plants and amongst the fallen leaves. It also was very common under the thick foliage on the uncleared land or in the jungle.

37. *Columbigallina passerina pallescens*. MEXICAN GROUND DOVE.—Flocks of these were quite numerous and tame around the banana ranch, often coming up to the house and under the front porch to pick up grain dropped by the horses while feeding. They were also found in large flocks on the cleared land around San Blas.

38. *Cathartes aura*. TURKEY VULTURE.—Only two pairs were noted during my whole stay on the mainland and these were back of the rancho, but on White Rock they were very common, while the Black Vulture was absent. Their main food on the islands seemed to be, like that of the gulls and caracaras, the victims of the booby fights, with

any decayed animal matter cast up by the waves. They were found breeding on Cleofa Island but none were breeding on White Rock, they preferring the shelter of the trees and shrubbery found on the former island. None were seen on Isabella Island.

39. **Catharista urubu.** BLACK VULTURE.— Very common and very tame on the mainland, where they acted as scavengers and were unmolested. The lower branches of almost every cocoanut palm in San Blas was their roosting place by day and night, and around the slaughter house were so tame that they merely hopped to one side to allow one to pass. The top of the old stone walls of the former Custom House, located on a high bluff, was, I was told, their favorite nesting place, but up to the time of my leaving they had shown no signs of nesting.

40. **Urubitinga anthracina.** MEXICAN BLACK HAWK.— A large tree in a cleared field about a mile and a half back of town, contained a nest and two eggs of this species. Both eggs were pipped at the time of securing them— May 14 — but I was never able to get within gun reach of either of the old birds.

41. **Asturina plagiata.** MEXICAN GOSHAWK.— While walking through a cleared field back of San Blas, April 28, a male of this species was flushed from a large tree and secured. Thinking they might be breeding in a cliff not far off, I turned my steps thither and was rewarded by seeing the nest some 150 to 200 feet up the side of the cliff and in a tree growing out of the side of it. The female was on the nest at the time, and, though I wounded the bird after scaring her from the nest, I was unable to secure her. As the sun was now well up and it was too late in the day to try to make the hard climb, I left and returned early the next morning. A path was followed up the back of the hill to the top, but on coming to a point above the nest I found, to my disgust, that it contained only one egg, and that the nest and tree were placed in such a position that it was really risking one's neck to get it. While I think I should have run the risk had it contained a full set, one egg was not sufficient inducement, so I returned without the egg and with one bird.

42. **Falco columbarius.** PIGEON HAWK.— A single bird was seen a number of times while on White Rock, generally chasing a Red-billed Tropic Bird, but never did I see him capture a bird of this species. While I had my gun I was unable to secure a shot, but later on one of these birds would swoop down on the caracaras and gulls that were feeding on the bodies of specimens I had thrown to them, and become monarch of all he surveyed. It was really amusing to see this little bird take and hold the fort against all comers. Starting from a perch on a jagged rock about 25 feet above my head, it would swoop down over the birds engaged in picking the carcasses to pieces, and, turning on its upward flight, descend and strike at them before they could take wing and get away. Only once did any bird oppose him or show fight and he — a Turkey Vulture — was soon put to route, while the caracaras were more afraid of him than the

gulls. One bird only was seen while on Isabella Island, but after watching him chase a Tropic Bird for some time he made off for the distant Tres Marias Islands and was soon lost to sight.

43. **Falco sparverius** subsp? SPARROW HAWK.—Two females were secured in Tepic. April 1. A pair were also generally found on a dead palm tree stump on the banana ranch where they had had their nest the previous season.

44. **Polyborus cheriway**. AUDUBON'S CARACARA.—A number of pairs were seen on the mainland between the rancho and San Blas. They permitted one to come within twenty feet of them before taking wing.

45. **Polyborus cheriway pallidus**. TRES MARIAS CARACARA.—These birds were very abundant on White Rock during my stay, and also on Cleofa Island where they bred.

46. **Screech Owl**.—A single bird of some species of Screech Owl was flushed from a cavity on Isabella Island, and although I followed it for some distance I was unable to bring it down.

47. **Horned Owl**.—Some species of Horned Owl was heard one night from the porch of the ranch house by both Mr. Bryant and myself, but I was not able to secure it.

48. **Glaucidium phalænoides**. PYGMY OWL.—The pair of birds collected occupied a woodpecker hole in a dead palm stump at the side of the ranch house, and after waiting some little time till I was sure from their actions that they had laid, I cut the hole open April 19. Instead of eggs I found the hole half full of shelled corn, the little fellows having picked it up at night from the ground outside the kitchen where the cook had been sorting it before making torteas. I then gathered in the pair and found no sign of breeding when dissecting them. Several other pairs were seen around the rancho, especially in the dense thickets back of the house, and they seemed to be able to get around in the bright sunlight as well as any other bird.

49. **Amazona finschi**. FINSCH'S PARROT.—These birds were very common around the rancho and their noisy squeak could be heard the last thing before dark and the first thing in the morning as they passed back and forth from the wild fig trees where they were feeding. The palm trees seemed to be their favorite nesting places, and a set of three pure white eggs, about the size of a Belted Kingfisher's, were secured the last week in March. None of this species were noted at San Blas, some eight miles away.

50. **Amazona albifrons**. WHITE-FRONTED PARROT.—This species was very common around the town of San Blas only, none being seen over at the ranch some eight miles away. During the hot part of the day they kept to the palms growing within the town, while in the late afternoon and early morning they could be found feeding in the bushes and trees on the outskirts of the town.

51. **Amazona oratrix**. DOUBLE YELLOW-HEADED PARROT.—This

parrot was very common on Cleofa Island, feeding on the wild figs which at the time of my visit were ripe, but none were seen on the mainland during my stay there, the exception being tame birds of which there were a number.

52. **Conurus canicularis.** RED-AND-BLUE-HEADED PARRAKEET.—Flocks of from four to ten were very common along the coast, and could be seen at all times of day flying back and forth from one feeding ground to another, their constant chatter while on wing, and rapid flight, making them easily distinguishable. The natives kept them on perches in and around their houses as pets, and they soon became very tame and attached to their owners.

53. **Crotophaga sulcirostris.** GROOVE-BILLED ANI.—Abundant around San Blas and Tepic where they were following the cattle and feeding like Cowbirds.

54. **Trogon citreolus.** CITREOLINE TROGON.—Quite common around San Blas, particularly back of the rancho where they kept well to the tops of the tallest trees and from which could be heard at any time of day their familiar whistle.

55. **Momotus mexicanus.** RUFOUS-CROWNED MOTMOT.—By no means common, only three specimens being seen while at San Blas.

56. **Ceryle cabansi.** TEXAN KINGFISHER.—This little bird, while not common, was always found in pairs in the different arroyos, and a nest was discovered in a bank where gravel had been taken out for house building.

57. **Ceryle torquata.** GREAT RUFOUS-BELLIED KINGFISHER.—This handsome bird I found frequenting the arroyo back of the rancho, and it was also seen on White Rock, Tres Marias Islands, as previously mentioned under the heading of *Larus heermanni*.

58. **Geophlœus scapularis.** MEXICAN PILEOLATED WOODPECKER.—Numbers of these birds were seen in the large timber back of the rancho when first arriving, but as they soon disappeared altogether, I suppose they were migrating.

59. **Centurus elegans.** ELEGANT WOODPECKER.—Quite common around the rancho and also at San Blas where it nested in holes in the palm trees. A pair having their nest in a dead palm stump in front of the ranch house had not laid up to the time of my departure.

60. **Dryobates scalaris graysoni.** GRAYSON'S WOODPECKER.—Quite numerous on Cleofa Island and, like all the other island birds, was very tame. The specimens collected were destroyed by the upsetting of our canoe.

61. **Chordeiles acutipennis texensis.** TEXAN NIGHTHAWK.—Very numerous around San Blas during the week beginning May 10.

62. **Amazilis graysoni.** GRAYSON'S HUMMINGBIRD.—Specimens of this species were secured on Cleofa Island March 10, but owing to my mishap in getting through the breakers I have nothing to show for them.

63. **Iache lawrencei.** LAWRENCE'S HUMMINGBIRD.— One specimen of this species was also secured on Cleofa Island on March 17 but ruined in the general scramble for shore and effort to save other effects.

64. **Tyrannus verticalis.** ARKANSAS KINGBIRD.— A single specimen was taken March 29, during the wave of migrating birds. This species was extremely common during my stay at Tepic.

65. **Tyrannus melancholicus couchi.** COUCH'S KINGBIRD.— Quite common around San Blas, being one of the first of the smaller birds to breed. Large flocks of these were seen at Tepic, March 30 to April 5, going northward.

66. **Pitangus derbianus.** DERBY FLYCATCHER.— This was one of the commonest birds around San Blas and the rancho, and also at Tepic, and its nest could be found in almost every thorny tree. Few nests up to the time of my departure contained eggs, of which I examined some twenty-five or more.

67. **Myiarchus lawrenceii.** LAWRENCE'S FLYCATCHER.— A pair was shot at San Blas, March 25, and while not common, a number of pairs were seen.

68. **Myiarchus lawrenceii olivascens.** OLIVACEOUS FLYCATCHER.— Numbers were seen during both trips to Cleofa Island, being unusually tame. One specimen was secured, but shared the fate of all the other specimens taken on this island.

69. **Cissilopha san-blasiana san-blasiana.** SAN BLAS JAY.— This bird was quite common around San Blas and the rancho, it nesting in the tall trees bordering the arroyo back of the latter place.

70. **Corvus mexicanus.** MEXICAN CROW.— No palm tree seemed complete without a pair of these birds as regular residents. They seemed to roost always in the same palm, and later on nested in the place occupied by them the previous year. They were very tame, allowing one to come within ten feet or even less before hopping or flying to one side, and their plaintive little cry could be heard from the house tops or trees in the garden any time of day. During the time the wild figs were ripe, these seemed to be their main article of food, and I have seen as many as forty in one small tree at a time. Nest building was still being carried on at the time of my departure.

71. **Tangavius æneus æneus.** BRONZED COWBIRD.— Quite numerous in flocks at San Blas, especially around a slaughter house with cattle yards adjoining. No birds of this species were seen while at Tepic.

72. **Cassiculus melanicterus.** MEXICAN CACIQUE.— This beautiful oriole was very common around San Blas and the rancho, in fact the commonest bird in that section. A large number of nests were inspected before my departure but none had eggs, although some had been finished a week or more. One bird having a nest in a tree at the side of the ranch house had been building for some six weeks, and although it seemed finished and the birds had stopped carrying in material, no eggs had been deposited

two weeks later. One of the finest nests I saw, and now in my collection, was attached to the end of a cocoanut palm leaf and measured three feet three inches in length.

73. *Icterus pustulatus*. SCARLET-HEADED ORIOLE.—This species, while not quite so common as the preceding, was nevertheless not scarce, and almost every thorn tree that contained a nest of the former species would be sure to have a nest of this species also. The majority of the nests were empty, although some good sets were secured, among them one with the egg of a Bronzed Cowbird.

74. *Icterus graysoni*. GRAYSON'S ORIOLE.—Specimens of this bird were secured easily on Cleofa Island during both trips but were unfortunately lost with the other specimens. I had hardly cut my way through the cacti at the entrance to a small arroyo on the island before one of these birds came down from a topmost branch to inquire as to what this strange proceeding might be. On sitting down and chirping to it I was almost able to get within arm's reach, and when I was walking up the cañon numbers of these birds showed but little fear of me.

75. *Megaquiscalus major obscurus*. COLIMA BOAT-TAIL.—According to Ridgway's 'Birds of North and Middle America,' Part II, page 241, specimens taken at San Blas are now referred to this species. These birds were very common, almost as much so as barnyard fowls. They would come in under the tiled roofs and descend to the floor of my room, while many times I sat at the dining table and watched one or a pair fly on to the bread basket and commence picking at a piece, sometimes even on to the table. It was a pleasure while sitting at the table to snap small pieces of bread on to the floor and watch them race for and greedily devour it. The meat hanging on the racks of the out door markets or stalls was reduced many a pound by these birds. Often while in San Blas I saw as many as ten or twelve clinging to the pieces of meat and picking away for dear life, unmolested. During the first part of May many were breeding and most of the trees around town had their full share of nests. One tree from which I took a series of eggs stood next to the Custom House, almost in the middle of the street, and about a week later the same nests all had eggs in them again.

76. *Carpodacus mexicanus* subsp.? HOUSE FINCH.—A pair was taken at Tepic March 29.

77. *Spizella socialis* subsp.? CHIPPING SPARROW.—A single bird was taken at Tepic the last day of March and numbers of others were seen, all apparently migrating.

78. *Guiraca caerulea lazula*. WESTERN BLUE GROSBEEK.—A female of this species was secured during my stay in Tepic which, with other small birds, seemed to be migrating northward.

79. *Saltator plumbiceps*. GRAYSON'S SALTATOR.—A male was secured at Tepic.

80. *Ampelis cedrorum*. CEDAR WAXWING.—A pair was secured from a large flock while at Tepic and a few were noted eating the wild figs back of the ranch house.

81. ***Dendroica auduboni***. AUDUBON'S WARBLER.—A female was taken at Tepic, apparently migrating northward.

82. ***Icteria virens longicauda***. LONG-TAILED CHAT.—A male was taken at Tepic during the migration of small birds.

83. ***Mimus polyglottos leucopterus***. WESTERN MOCKINGBIRD.—A pair were seen at Tepic, but not secured.

84. ***Cardinalis cardinalis mariæ***. TRES MARIAS CARDINAL.—One specimen, a male, was saved from the specimens taken on Cleofa Island March 10 and 17 but it is very much bedraggled. This bird I generally found down toward the shore of the island near the little fresh-water streams, and it was generally as tame as the Grayson's Oriole.

85. ***Pheugopedius felix***. HAPPY WREN.—This little bird was very common around San Blas and fairly common around Tepic. Numbers of nests of this species were discovered, generally in the lower limbs of the thorny trees occupied by the orioles and Derby Flycatchers. The nest was generally a long tube constructed of fine grass and stopped up at one end. This was bent over a limb and a few grasses fastened it in place or kept it from slipping over after the little wren had entered by the other end. In other words, the nest was a complete elbow, the entrance on the under side of one end, while over the limb and down in the other end was the nest proper, where the eggs were deposited. I must have examined at least twenty of these nests, but up to the time of my departure none had eggs, while all seemed finished.

THE WEST INDIAN BLACK FORMS OF THE GENUS
CEREBA.

BY AUSTIN H. CLARK.

AMONG the West Indian members of the genus *Cereba* are two peculiar forms, one known as *Cereba atrata* (Lawr.) from the island of St. Vincent, and the other, *C. wellsi* (Cory), from the island of Grenada, which are entirely black. Mr. Ridgway has suggested (Proc. U. S. Nat. Mus., Vol. VIII, 1885, p. 28) that these may prove to be merely phases of plumage of the normally colored birds inhabiting the same islands, and I shall in the present paper advance reasons for this supposition.

In the genus *Cereba*, all the species are (except in these two cases) dark above, with a light superciliary stripe, and yellow, or yellow and white, below. Most of them have a yellow or yellowish patch on the rump, and all have the bases of the primaries (forming a wing spot) and the tips of the outer rectrices white. It is evident then, that the genus has a definite and well marked color-pattern. In the black forms there is an olive tinge on the underparts (except the throat) and rump, corresponding to the yellow markings of the normally colored birds *inhabiting the same islands*. The black forms are of the same color from the first appearance of feathers, and not of more normal coloration in the younger stages as we might expect were these forms simply species widely divergent from the generic type.

The black birds are identical in size, coloration of naked parts, actions, notes, and nesting habits with the normal birds of the same islands. In the case of *Cereba wellsi* the eggs are exactly alike.¹

In the genus *Cereba* no two species are known to inhabit the same locality.

In certain mammals (for example, *Canis occidentalis* Rich., *Fulpes fulvus* Desm., and *Sciurus carolinensis* Gmel.) melanistic

¹ I have never seen the eggs of the normal form of *C. atrata*.

forms are common, and sometimes occur only in restricted portions of the habitat of the species, as in the case of the black phase of one of these Honey Creepers (*C. wellsi*). A rather interesting and somewhat similar phenomenon is shown in the females of the American swallow-tailed butterfly (*Papilio glaucus* Linn.) which are yellow like the males in the northern part of the range of the species, but sooty black in the south.

In the case of these Honey Creepers, the black colored birds, possessing a well marked dominance over those of normal color, have gradually increased in proportion, until the typical phase has been practically eliminated from those islands on which the black phase occurs.

As the evidence seems to show that these two black Honey Creepers are conspecific with the normal forms inhabiting the same islands, the species on St. Vincent must be known as *Cæreba atrata* (Lawr.),¹ that name having page precedence over *C. saccharina* (Lawr.),² applied to the bird in the normal phase of plumage. The Grenada species must stand as *Cæreba wellsi* (Cory).³

The two birds with their synonymy and distribution are as follows:—

***Cæreba atrata* (Lawr.). St. Vincent.**

Normal form.

MOLASSES BIRD; SUCRIER; YELLOW BREAST.

Certhiola saccharina LAW., Ann. N. Y. Acad. Sci., Vol. I, p. 151 (1878); LAW., Proc. U. S. Nat. Mus., Vol. I, pp. 190, 487 (1878); CORY, List Birds W. I., p. 9 (1885); RIDGW., Proc. U. S. Nat. Mus., Vol. VIII, pp. 28, 30 (1885); CORY, Auk, Vol. III, p. 50 (1886); Birds W. I., p. 64 (1889); SCL., Cat. Birds Brit. Mus., Vol. XI, p. 42 (1886); [CLARK], W. I. Bull., Vol. V, p. 86 [1904].

Cæreba saccharina CORY, Auk, Vol. VIII, p. 39 (1891); Cat. W. I. Birds, pp. 17, 116, 134 (1892); RIDGW., Birds No. & Mid. Am., Vol. II, p. 415 (1902); MAYN., Cat. Birds W. I., p. 26, No. 249 (1903).

¹ Lawrence, Ann. N. Y. Acad. Sci., Vol. I, 1878, p. 150.

² Lawrence, Ann. N. Y. Acad. Sci., Vol. I, 1878, p. 151.

³ Cory, Auk, Vol. VI, 1889, p. 219.

Formerly not uncommon in the vicinity of Kingstown and the immediate windward district of St. Vincent, but now exceedingly rare, if not actually extinct.

Black Form.

BLACKBIRD.

- Certhiola atrata* LAWR., Ann. N. Y. Acad. Sci., Vol. I, p. 150 (1878); Proc. U. S. Nat. Mus., Vol. I, pp. 190, 487 (1878); LISTER, Ibis, 1880, p. 40; SALV. & GODM., Biol. Cent. Am., Aves, Vol. I, p. 250 (1883); RIDGW., Proc. U. S. Nat. Mus., Vol. VIII, pp. 28, 30 (1885); CORY, Auk, Vol. III, p. 53 (1886); Ibis, 1886, p. 473; SCL., Cat. Birds Brit. Mus., Vol. XI, p. 47 (1886); CORY, Birds W. I., p. 67 (1889); RENDALL, Zoölogist, 1897, p. 447; NICOLL, Ibis, 1904, p. 563; [CLARK], W. I. Bull., Vol. V, p. 86 [1904].
- Cæreba atrata* CORY, Auk, Vol. VIII, p. 40 (1891); Cat. W. I. Birds, pp. 17, 116, 134 (1892); RIDGW., Birds No. & Mid. Am., Vol. II, p. 422 (1902). MAYN., Cat. Birds W. I., p. 25, No. 245 (1903).

Abundant all over the island of St. Vincent.

***Cæreba wellsi* (Cory).** Grenadines and Grenada.

*Normal Form.*¹

LOUIS D'OR; SUCRIER.

- Certhiola* sp. LAWR., Proc. U. S. Nat. Mus., Vol. I, p. 278 (1878).
- Certhiola atrata* (!) LAWR., Proc. U. S. Nat. Mus., Vol. I, p. 269 (1878).
- Certhiola saccharina* RIDGW., Proc. U. S. Nat. Mus., Vol. VIII, pp. 28, 30 (1885); CORY, Auk, Vol. III, p. 50 (1886); SCL., Cat. Birds Brit. Mus., Vol. XI, p. 42 (1886); WELLS & LAWR., Proc. U. S. Nat. Mus., Vol. XI, p. 613 (1886); CORY, Birds W. I., p. 64 (1889); [CLARK], W. I. Bull., Vol. V, p. 86 [1904] (Grenadines).
- Cæreba saccharina* CORY, Cat. W. I. Birds, pp. 17, 116, 134 (1892); WELLS, Auk, Vol. XIX, p. 348 (1902); Birds Carriacou, Grenada Handb., 1904, p. 150, No. 69; RIDGW., Birds No. & Mid. Am., Vol. II, p. 415, and footnote (1902).

The normal phase of plumage of *C. wellsi* is exceedingly rare on Grenada. Mr. Wells, who lived nearly all his life on the island,

¹ *Certhiola godmani* Cory (Auk, Vol. VI, p. 219, 1889) was founded on a specimen of *Cæreba luteola* (Cab.) taken on Grenada.

never met with one, and the only authentic specimen known to me is one which was shot near Point Saline in the spring of 1904 by Mr. Charles Vernet of St. George's, who very kindly presented it to me. He informed me that, although he has collected birds for a number of years at Grenada, he never saw but this one example. It is identical with a large number of others obtained by myself on the Grenadines.

On the small islands between Grenada and St. Vincent, this form is very abundant; in fact it is one of the commonest birds. It occurs on Bequia, Battowia, Balliceaux, Mustique, Canouan, Mayreau, Union Island, Prune Island, Frigate Rock, Petit Martinique, Tobago Keys, Carriacou (and neighboring islets), and Isle Ronde (with outlying keys).

Specimens of normal *C. wellsi* differ from normally colored *C. atrata* from St. Vincent in being smaller, with a shorter and weaker bill (just as the black forms from the two islands differ), and they are not so dark above.

Black Form.

BLACK SEE SEE.

Certhiola wellsi CORY, Auk, Vol. VI, p. 219 (1889); [WELLS], Birds Grenada, Grenada Handb., 1904, p. 147, No. 12.

Certhiola atrata LAWR., Proc. U. S. Nat. Mus., Vol. I, pp. 269, 487 (1878); RIDGW., Proc. U. S. Nat. Mus., Vol. VIII, pp. 28, 30 (1885); CORY, List Birds W. I., p. 9 (1885); Auk, Vol. III, p. 53 (1886); SCL., Cat. Birds Brit. Mus., Vol. XI, p. 47 (1886); WELLS & LAWR., Proc. U. S. Nat. Mus. Vol. IX, p. 612 (1886); CORY, Birds W. I., p. 67 (1889).

Abundant all over the island of Grenada, to which island it is confined.

BIRDS OBSERVED IN THE FLORIDA KEYS.

BY HENRY W. FOWLER.

WHILE searching for land snails in the Florida Keys for Mr. Clarence B. Moore, between Cape Sable and the Marquesas Keys, I incidentally observed a number of birds. As some of them may prove of interest I give an annotated list made during June, 1904.

1. *Larus atricilla*. GULLIE; GULL; BLACK-HEADED GULL.—Seen on the bouys approaching Key West, and also about Cudjoe's and Snipe Keys. The bouys mentioned were whited with bird excreta and were used either for resting or roosting by sea-birds.

2. *Sterna hirundo*. TERN; BLACK-HEADED TERN; REDSHANK.—One seen off the Marquesas and many others about West Cudjoe's and Snipe Keys. June 22 they were found in numbers breeding on Hailer's Rock. One egg contained a young bird about to hatch.

3. *Sterna antillarum*. KILLING-PETER.—Breeding in some numbers together with the former on Hailer's Rock. From an ornithologist's point of view this is one of the most interesting places visited. It is a low, small, flat island of sand, with a rocky foundation, off Bahia Honda Key. The vegetation consists of a low growth of bushes, with here and there more or less sand. The southern end is of broken or excavated rock leaving numerous tide-pools with an abundant supply of food in the form of anchovies, etc., for most water birds. Three eggs were found to be the exception in the nest of this species, seldom more than two occurring, and sometimes only one. The nest is a mere shallow depression in the sand, and those found were all situated more or less to the lee of the island. They were scattered here and there, and rather close at times. Some were along the beach but always above tide-line. At our approach the birds all flew from the ground in a body, and continued to utter their sharp, grating cries while flying about overhead. The eggs of this and the preceding are robbed by the turtle-hunters, and others, and used as food. I also saw this bird about Snipe Key.

4. *Pelecanus fuscus*. BROWN PELICAN.—Key West, Boca Grande, Boca Chica, Riding and Snipe Keys. They were numerous about the Marquesas Keys catching mullets (*Mugil*) and other fish. When flying the strokes of the wing may be heard at times for quite a distance. When flying about the shallows they frequently drop into the water with a loud clumsy splash, though not always successful in capturing a fish. One was found which had apparently accidentally committed suicide by transfixing its beak in a forked branch of a mangrove. A flock of these birds frequented the rocks about Hailer's Rock where they can easily obtain plenty of finny food.

5. **Fregata aquila.** MAN-O'-WAR HAWK.—Seen about Key West either high in the sky or frequently darting down into the shallow water, among the vessels at anchor in the harbor, to pick up some scrap of food. Mr. S. Brown observed one swallow a gar (*Tylosurus*) fully a foot in length. Most of the birds seen had white throats, and the nearly uniform black ones were only occasional. When seen at sea they sail very high, mostly in a straight line, though sometimes flapping their wings a little. I saw them at Riding Key and large flocks about the Marquesas. Although reported to breed on some of the islands I did not meet with any nests. A common impression prevalent among a number of fishermen and others, and which I believe has already been noted before, is that these birds will chase and pounce on gulls which immediately vomit. This is then caught in the beak of the marauder, before it reaches the water, and swallowed. The robber if not satisfied will still chase his victim again and sometimes catch him about the neck to repeat the operation. It was also reported that the gulls will cast their excreta and that the Man-o'-War treats it in the same manner. However, I did not observe any of these attributes and merely submit them based on what seemed to me largely reliable information.

Upon inquiry concerning the Flamingo (*Phaenicopterus ruber*) or "Falamingo" as it was called, it appeared to be either very rare or probably exterminated. None seemed to have been noted during the last ten years.

6. **Ajaia ajaja.** PINK CURLEW.—One reported from Riding Key though I did not meet with the bird myself. They were also reported to occur on the Marquesas.

7. **Guara alba.** WHITE IBIS; CURLEW; BROWN IBIS.—Flock of a dozen or more adults, and a single brown bird, seen about the bird-rock off Vaca Key.

8. **Ardea occidentalis.** BIG WHITE HERON; WHITE HERON.—Marquesas, Boca Grande, Ballast, Boca Chica, Sugar Loaf, No Name, Vaca, Grassy, West Cudjoe's and Snipe Keys. First observed on Woman Key and Key C far out from shore. In such places they have a good chance to look out for both food and danger. They are very shy and will not permit even a fair rifle-shot, suddenly flying off into the cover of the thick woodland. They may be seen wading in the water sometimes up to their bellies. They usually frequent shallower water, often standing perfectly motionless or walking about like great white sentinels, their snowy plumage enabling one to distinguish them at a very great distance. For the same reason they may also be located if in the trees, the contrast being very pronounced in the green foliage. Their flesh is used as food and is reported to be of good quality. It is only the younger birds which are preferred for this purpose, as the old ones are said to be tough. At the Marquesas I noticed as many as a dozen individuals stationed about in the shallows at one time. In the mangroves I saw traces of roosting of either these or the other herons.

A large example was killed on Sugar Loaf Key which had swallowed

a large sheepshead (*Archosargus*) of about ten inches in length. As a result of this extraordinary feat the fish had completely filled the abdominal cavity, greatly crowding the viscera and to the apparent great discomfort of the bird. In fact it was so thoroughly gorged that it had little disposition to fly, and made but little resistance when captured. No sex organs were developed.

9. *Ardea herodias wardi*. BIG BLUE HERON; BLUE HERON.—Large nests, probably of this species, were seen in the mangroves on the Marquesas. I also saw several birds there and others on Mangrove and Snipe Keys.

10. *Hydranassa tricolor ruficollis*. LOUISIANA HERON.—Boca Chica, Sugar Loaf and Knight Keys. Common on the bird-rock off Vaca Key, associated with the White Ibis, Green Heron, dark and white plumaged Little Blue Herons, Kingbird, Grackles and Red-wings, all of which appeared to roost there in numbers. When disturbed the Grackles and Red-wings rose up in great flocks from the undergrowth, all keeping up an incessant clucking. The water birds possibly used this roost to some extent to avoid the numerous mosquitos of the mainland. At our approach the herons whirled about overhead in flocks, but usually alighted again in or near the same places, such as the tree-tops.

11. *Florida cærulea*. LITTLE BLUE HERON.—Seen at Mangrove Key and the Marquesas Keys.

12. *Butorides virescens*. BITTERLING.—Found in some numbers on the roost north of Vaca Key. Mostly seen down among the lower bushes or flying near the water, and not at all shy. Their familiar cry was frequently heard.

13. *Nycticorax violaceus*. GAULDIN.—Marquesas, Boca Chica, Sugar Loaf, West Cudjoe's and Riding Keys. Used as food.

14. *Symphemia semipalmata*. WILLET.—The shrill and plaintive whistling cry of this bird was heard at Cudjoe's Key where about half a dozen individuals were seen.

15. *Rallus crepitans scottii*. MUD HEN.—One example killed on West Cudjoe's Key, and another with young was reported from Riding Key June 26. This is regarded as a game-bird.

16. *Ochthodromus wilsonius*. RING-NECKED SNIPE.—A flock of about ten were seen on Ballast Key along the rocky shore. They were quite tame, keeping but a short distance ahead and continually uttering their piping notes. A pair also frequented Hailer's Rock where they were probably breeding as two small eggs, smaller than any of the terns, were found.

17. *Columba leucocephala*. PIGEON.—Boca Grande, Boca Chica, Sugar Loaf, No Name, Vaca, Bahia Honda and Summerland Keys. A flock of about twenty-five was seen at one time on the Marquesas, and while frequently observed at various other places in this group they were always shy. Usually but two or three were seen at one time and then as they were flying about from one island to another. They seemed to prefer the concealment afforded by the luxuriant vegetation.

18. **Columbigallina passerina terrestris.** DOVE; MOURNING DOVE; TOBACCO DOVE.—On the island of Key West I found them in the low grass in the more open land, and either solitary or in pairs. Their flight is short and steady, and their cry similar in dolefulness to that of *Zenaidura macroura*. At Boca Grande Key they were feeding along the beach and were very tame. Abundant on the Marquesas, and also seen on Big Pine, Vaca and Summerland Keys.

19. **Cathartes aura.** TURKEY BUZZARD.—Boca Chica and Big Pine Keys. Abundant in the sky about Key West most of our stay, frequently very high.

20. **Buteo lineatus alleni.** FOWL HAWK.—First observed in a cocoanut grove on Boca Chica Key. Possibly they may nest there. Also found on Big Pine and Grassy Keys.

21. **Pandion haliaëtus carolinensis.** FISH HAWK.—Several seen about the Marquesas where one was chased into a tree by a Kingbird. A nest was seen on Snipe Key, which was reported to have been there about fifteen years. Cudjoe's Key.

22. **Crotophaga ani.** ANI.—About the lagoon on Key West Mr. S. Brown and myself saw a bird which we believed to be this species. It resembled the grackle somewhat though the tail was longer. The color and flight were apparently similar. Its cry was most peculiar and may perhaps best be described as a whining whistle. I also saw another of these birds which answered the cry of the one we were observing, and the next day both were found about the bushes in the same locality.

23. **Coccyzus minor.** RAIN CROW.—Key West, Boca Grande, Boca Chica, Sugar Loaf, Big Pine, Grassy and Snipe Keys. Their cry is a clucking similar to that of *C. americanus*. They occur usually solitary or in pairs in the mangroves and are tame.

24. **Centurus carolinus.** WOODPECKER.—Boca Chica, Big Pine, Knight and Grassy Keys.

25. **Chordeiles virginianus.** BULL BAT.—One seen on Knight Key.

26. **Corvus brachyrhynchos pascuus.** CROW.—Two seen on Big Pine Key about a pool well inland. Their cry resembles that of *C. brachyrhynchos*.

27. **Tyrannus dominicensis.** BEE BIRD; FIGHTER.—Marquesas, Boca Grande, Boca Chica, Sugar Loaf, Big Pine, Grassy and Snipe Keys.

28. **Agelaius phoeniceus bryanti.** BLACK BIRD.—Boca Grande, Ballast, Boca Chica, Sugar Loaf, Big Pine, No Name, Vaca, Summerland, Cudjoe's and Marquesas Keys. The note of this bird is noticeably different from that of *A. phoeniceus*, or mostly more metallic. They are shy and prefer the concealment of bushes.

29. **Quiscalus quiscula aglæus.** BLACK BIRD.—Small flocks were seen at different points on the island of Key West. Their note is apparently a little different from that of *Q. quiscula*. Mr. S. Brown saw a small flock on Big Pine Key, also several nests in the slender buttonwoods. They were made of sticks and placed about ten feet from the ground.

I saw similar nests about a pool on Summerland Key. These birds were very abundant on the island off the north shore of Vaca Key. They were tame and many young were heard continually. Others were observed on No Name, Vaca, Grassy, Bahia Honda, Little and Big Pine and Sugar Loaf Keys.

30. *Quiscalus major*. BLACK BIRD.—Several brown birds, apparently this species, were seen on Summerland Key.

31. *Cardinalis cardinalis floridanus*. RED BIRD; RED ORIOLE. Marquesas, Boca Chica, Big Pine, No Name, Knight, Vaca, Grassy, Little Pine, Summerland, Cudjoe's and Snipe Keys. The familiar whistle of this bird was heard in most every place we visited though only occasionally could one catch a glimpse of the bird.

32. *Vireo noveboracensis maynardi*. SPARROW.—Boca Chica, Sugar Loaf, Big Pine, No Name, Knight, Grassy, Summerland and Cudjoe's Keys. Abundant and frequently in the mangroves.

33. *Mimus polyglottos*. MOCKER; MOCKING BIRD.—Key West, Boca Chica, Summerland and Cudjoe's Keys.

Academy of Natural Sciences of Philadelphia.

A-BIRDING IN AN AUTO.

BY MILTON S. RAY.

THAT faithful friend, the horse, was forsaken this year (1905) for that modern, rapid but rather uncertain conveyance, the automobile. To be technical, our machine was a sixteen-horse-power double opposed cylinder Wayne touring car. The tonneau was replaced by a large locker which held sufficient supplies to sustain us almost indefinitely, should we leave the land of the storekeeper. The original plan was to enter the San Joaquin Valley from the west, via Dublin Pass and Livermore, but the early May rains willed it otherwise; so we embarked on a river boat, at a city pier, which took us as far as Stockton. The latter town lies at the mouth of this great level valley, which presents a very even type of country throughout its length. The central portion, for the most part, consists of either marshy waste or alkali-desert land, often as wide as thirty miles or more, and which is practically

treeless except along the river banks. The portion which surrounds this and lies adjacent to the foothills takes in nearly all the settled and cultivated districts and can boast of some fine oak and other timber.

May 10.— To Merced (and 10 miles beyond), 75 miles. Species and subspecies observed, 30.

Knowing (or at least hoping) our tour would be an extended one, we decided to list the species of birds found on the trip. Daylight broke a few miles from Stockton and as the river boat steamed up the slough, fourteen forms were counted, including the Western Martin, which we found in the town proper. In the time it usually took to harness the horses our motor-vehicle had carried us far outside the town limits. It was very pleasant travelling, for so swiftly and noiselessly did we glide along that the whole landscape, like a moving picture on a curtain, seemed rushing toward us. The recent rains had left but little trace on the well packed roads and with the exception of a hard pull through the famous sand bed near Livingston, which has caused many a chauffeur to borrow a team of horses, we had little to complain of. We called it a day's run to a point ten miles west of Merced, where, in a pleasant grove of trees along an irrigation ditch, we encamped for the night. Immense flocks of various blackbirds and finches were swinging over the miles of pasture lands, head-high with the rank growth of wild hay, weeds and mustard. A Black Phoebe had the honor of being the owner of the first nest we officially inspected. It was placed underneath a bridge over the ditch and was waiting for eggs.

May 11.— To Firebaugh, 58 miles. Additional species observed, 11.

Instead of continuing southward we decided to cross the valley to Los Baños, situated about thirty miles due west, across a broad stretch of marshy waste-land; as it promised to greatly increase the list with its wealth of water bird life, we did not heed the repeated warnings regarding the bad condition of the road. While for the first few miles the road was all that could be desired, it then so gradually and continuously passed from bad to worse that we were only deterred from turning back by the memory of the part we had passed. Sloughs crossed the road at will, and in the endless succession of hollows, ponds with sticky mud bottoms

usurped the road-bed. The region is locally known as the "hog-wallow" country and it certainly deserves its name. Water birds were unusually numerous. Black-necked Stilts were as abundant as fowls about a barnyard, and we were also favored with the occasional presence of the delicately colored and graceful American Avocet, while the hovering flocks of Forster and Black Terns above the tule patches reminded one of their great Sierran summer haunts. Immense bands of American White Pelicans, countless Cinnamon Teal, as well as other less abundant varieties, gave the region, otherwise peculiarly uninviting, a deep interest for the ornithologist. But repeatedly to lay on our back on a muddy road beneath a conglomeration of machinery to repair or adjust some injury, did much to draw our attention from the bird life. The road improved as we approached Los Baños, and we hoped for better times to Dos Palos, but this section eclipsed all that we had traversed. A dozen times we came to a complete stop, for to continue through the ponds, sloughs, and deep hollows of what only in extreme courtesy could be called a road, seemed impossible. Covered with mud we finally emerged from the swamp and entered the old Mexican town above named. Two miles further on, at Colony Center, the country changed from worst to best. Smooth roads, lined with tall shade trees, led by prosperous farms with their fields of grain, orchards and dairy lands. Numerous bird forms flitted about, while from many a swaying roadside bough the Bullock Oriole had hung its dainty basket of horsehair. A pretty ride into Firebaugh was marred only by storm clouds which soon overcast the sky, and we were forced by heavy rain to halt at this town, which stands on the west bank of the San Joaquin River.

May 12.—To Kings River, 76 miles. Additional species, 10.

An almost steady downpour continued last night, causing the roads to be so slippery that we deemed it inadvisable to continue until noon. Several hours were spent overhauling our gasoline wagon, and later we rambled over the broad willow-covered flat which banks the river on both sides. Never have I seen any locality equal this for the abundance of the House Finch, which was nesting everywhere. Many Bullock Orioles were building in the oaks and willows, a Western Tree Swallow's nest disclosed two

eggs and one newly-hatched young, while the well-feathered family of a Red-shafted Flicker was occupying a cavity in a tall dead stump. In exploring this the writer seriously cut his hand with a camp ax, which closed operations for the day. At noon we were on the road again, covering the thirty odd miles which lie between Firebaugh and Madera. This stretch of alkali wasteland is less swampy than the region crossed to the north, and water birds were correspondingly less numerous. Owing to the fact that we travelled with greater speed and less noise than by the usual method, we found we could approach much nearer animal life along the road. Turkey Vultures that we often came upon while they were feeding would scarcely fly when we passed them, and on several occasions we sped by a Swainson Hawk or some equally large bird sitting on a fence-post. Near Madera we came upon a Mexican Horned Lark feeding a juvenile in the center of the road. The parent took flight, but before we could stop, the youngster passed from sight beneath us but was luckily unhurt. This is the earliest date we know of for fully-fledged young.

As we approached Madera the fertile country appealed strongly to us, after crossing the broad stretch of alkali country. In an orchard near town our list was increased by the appearance of that flexible-throated songster, the Western Mockingbird. Between Madera and Fresno the country becomes very dry and barren, but from the latter place southward lies the richest portion of the whole valley. Dusk found us camping in the shade of some mighty oaks on the Kings River, two miles south of Kingsbury. To the east, where this river has its source, the Sierras form a continuous wall and reach their highest point in Mount Whitney. The long line of towering peaks in their snowy grandeur recalled the sparkling torrents, crystal lakes, and vast forests of these great mountains, with a bird life possessing for the student a fascination which no other region quite equals.

May 13.—To Visalia, 17½ miles. Additional species, 7.

Before leaving Kings River to-day I had some opportunity to observe the birds about the camp. A pair of Long-tailed Chats, by their noisy chatter and earnest call-notes, proclaimed too prominent an interest in a clump of low bushes where the just completed

nest proved to be. A puzzling find was placed in a niche of a tree, built warbler-style and feather-lined, but there was no sign of ownership. Nearby a Heermann Song Sparrow's nest showed eggs and a Spurred Towhee's contained young.

Continuing southward we passed Goshen Junction, and thence eastward through Visalia. We little thought as we went bounding out of the latter town that we were destined to spend a full week within its borders. Yet, such is automobiling, for when two miles out, a piece of the machinery, no doubt previously strained in the swamp country, gave way and left us stranded at the roadside. After being towed back to town, and telegraphing East for a duplicate part, we comfortably settled our camp in the leafy shades of a large orchard and endeavored to convince ourselves that this was the very place we had been looking for.

May 14 to 21.—Visalia. Additional species, 8.

Visalia lies in an open forest of oaks through which glides the broad St. Johns River, besides a host of minor streams. While the banks of the river and some of the streams were heavily wooded, others were only fringed with a low growth of willows overhung with blackberry vines. As would be expected in such a fertile country as this, edging the foothills, we found bird life abundant. Nearly all the species seen on the trip were again encountered and many new ones. Almost everywhere the air rang with bird song, and the longer we remained the less we regretted our enforced stay. One species which interested us particularly,—not on account of its rarity, for it was very abundant, but for the reason that our previous acquaintance with it had been very slight,—was the Western Blue Grosbeak. To me this bird seems a strange combination of un-grosbeaklike characteristics. The male and female are not greatly unlike a pair of Bluebirds in size, coloration and flight; while the nest, and also the eggs, closely resemble those of the Lazuli Bunting. The nest, placed in weed thickets, neatly fastened to the stalks, from two and a half to four feet up, is compactly made of grasses and weed stems and lined with horse hair, the nest cavity averaging three inches wide by one and three quarters deep. At seven o'clock one morning I noticed a pair which were carrying the initial stems to a weed clump along Mill Creek, so I was able to determine just how

long it took to build a nest. This one was finished with a thick lining of horsehair at half past five in the afternoon of the following day. Another nest was found only a few feet from the main tracks of the Santa Fé Railroad over which the overland trains were tearing by day and night, while a third was in a thicket of nettles, a rather clever barricade. The bird is a late breeder, as all nests examined contained either the full complement of three eggs in a fresh state, or incomplete sets, while there were empty nests in various stages of construction.

My favorite grounds were in the cool shades along the St. Johns River, for the thermometer has an awkward habit here of running up as high as 114° F. on summer days which we found very destructive to ambition. One morning, by the river, I was agreeably surprised to see, eyeing me over the edge of a twig structure about forty feet up in an oak, a majestic female Western Red-tailed Hawk. The tree was peculiarly hard to ascend, and the nest was placed in the most inaccessible part. On the following day I returned with my brother, who after some deliberation started up the trunk. The hawk refused to stir, however, until he was less than twenty feet distant. While I was meditating on the probable style of the egg markings I was rudely awakened by an exclamation of disgust as my brother announced that the nest was empty, which was wholly unexpected considering the late date.

During our visit I located many bird homes but all belonged to the more common species; half a dozen warbler abodes containing eggs in various stages proved to be those of *Dendroica aestiva brewsteri*.

May 22.—To Bakersfield, 93 miles. Additional species, 2.

The trip to-day was of little importance, ornithologically or otherwise. After leaving the orange groves of Porterville, which lies twenty-nine miles southeast of Visalia, the country became more and more barren. At Famoso we entered a desert, sparsely covered with a low growth of shrubs, which extended unbroken to the mountain ranges in the hazy distance. Horned Toads and Horned Larks were the only inhabitants to present themselves, and after a run of twenty miles Bakersfield, like an oasis, loomed up in the distance. The great Kern River, which courses through

the town from east to west, brings a fertility to the section which has been greatly enhanced by man.

May 23.—To Gorman Station, 60 miles. Additional species, 2.

We started at exactly noon to-day by the town clock; soon after the habitations on the outskirts faded away and we again went forth into the desert country. A large curious racing lizard (*Crotaphytus wislizeni*) that scampered along with us at an amazing speed was very common. As we sped along myriads of grasshoppers took wing, flying just about high enough to be scooped into the moving car. Hundreds lit on the radiator, which was intensely hot from the heat above as well as below, and perished. Horned Larks remained our only bird friends, but they made up in abundance for what the avifauna lacked in variety. After leaving Rose Station we began the ascent of the great range of mountains which rose before us on the south. Owing to the absence of sign-boards and the lack of information imparted by the way-house keepers, who looked askance at a steed which required neither a barn nor hay, we made a mistake, and instead of taking the newly built road, we took an old one leading up the cañon. This was more direct but very steep in places, to ascend which it was necessary to do what is termed 'jumping.' The engine is run at the highest speed and the power quickly thrown in, which causes the car to bolt ahead. In this way, by degrees, we went up until suddenly the machine, unable to proceed with the load, started down the grade, and before the brakes could be applied, veered to the side of the narrow road and hovered on the brink of the precipice. I can still see that little stream curling along perhaps a thousand feet below and nothing between but space. Through sheer luck we were able, at the critical point, to turn the automobile in on the road, the wheels just rolling along the edge of the cliff. But the experience of that awful moment taught us a lesson never to be forgotten. After stripping the car of its burden, which we carried to the top of the grade, and reloading, we proceeded on our way.

The Fort Tejon country, a famous landmark in the early ornithological history of California, was perhaps the most interesting on the trip; here the cool green meadows and mountain timber, with the attendant bird life, were in striking contrast with the arid

valley lands we had passed. Such birds as the Lawrence Goldfinch and Southern White-headed Woodpecker were typical of the region, although lower zone species, as the Bullock Oriole and the House Finch, were also in evidence. About dusk we made the summit (elevation 4433 feet), and a little later pulled up at Gorman Station (elevation 3500 feet).

May 24.—To Los Angeles, 117 miles. Additional species, 6.

A large part of to-day's run was over a broad rolling plateau, timbered in spots and interspersed with ponds and an occasional lake, many of which, owing to the exceptional rainfall of the past season, existed for the first time in years. Various water birds sported on the surface of most of them. Several coyotes lying in the sun by the road were rudely awakened and headed with all speed for the timber, while the number of American Ravens seen soon dispossessed us of the idea that the bird is to be considered at all rare in the region. One stretch of country between Meenach (elevation 3039 feet) and Fairmount, known as Antelope Valley, with its heavy growth of tree yuccas (*Yucca arborescens*) and Spanish daggers (*Hesperoyucca whipplei*) had a truly semitropical appearance. Near Elizabeth Lake (elevation 3700 feet), along an unused road, I found, with parent incubating, five eggs of the Pasadena Thrasher. Four proved to be well advanced in incubation while the fifth egg, which was perfectly fresh, was clawed by the bird in leaving, the shell being very fragile, as seems usual with these 'extra' eggs. The manner of nesting in this case was in nowise different from that of the bird of our more northern woods.

At the head of a narrow brushy cañon known as the San Francisco, we started down the final grade. Some person with a fascination for figures has said that the stream is crossed fifty-three times on the way, and personally I believe the count is not far from accurate. We observed a number of White-throated Swifts flying about the tall rocky cliffs which tower above the road, and which undoubtedly afforded them nesting sites. Civilization and lower-zone bird life marked the ride from Saugus, at the foot of the grade, to Los Angeles, which was reached in time to get conveniently located.

May 25 to 31.—Los Angeles and vicinity. Additional species, 9.

During our stay we made runs to many of the nearby towns, as Long Beach, San Pedro, Santa Monica, Pasadena, etc., but found but little new in the bird line. On the whole I do not consider the sections we visited blessed with anything like the abundance and variety of bird life we have in similar localities about San Francisco, and the timber for the most part, after leaving the Tehachapi Mountains, was of a very scrubby character. We found a new bird friend in the Hooded Oriole, which was abundant about the parks of Los Angeles as well as in the adjacent territory. A very pleasant call was made on Mr. Joseph Grinnell at Pasadena, where "birdology" was reviewed for some time. I found our friend Grinnell with a strong leaning towards mammalogy, and his collection, particularly of the smaller species, is about the finest I have ever seen. The rest of the afternoon was put in with ostriches at the Cawston Farm. As I viewed these massive creatures, a number of which were setting on broad complements of those almost cast iron eggs, it occurred to me that such birds as these in our native wilds would work a terrible hardship on ornithologists and oölogists alike, looking for a series.

June 1.—To San Buenaventura, 77 miles. Additional species, 1.

Our journey to-day, for the most part, led us through a mountainous country, the major portion of which was but sparsely wooded. Coming down from Calabassas we encountered a large flock of Turkey Vultures feeding at the roadside, but as these had been of common occurrence on the trip they excited no more than ordinary interest. As we drew nearer, however, we found a much larger bird among them which we immediately recognized as the "king of the fliers," the great California Condor. This particular individual was as languid in taking flight as the smaller birds of the flock and afforded us, on foot and wing, an exceptional view for some time.

A succession of up and down grades finally brought us to San Buenaventura where the night was spent. This was the last point where we found the Hooded Oriole and Western Mockingbird, although they may perhaps occur further north.

June 2.—To Santa Barbara, 31 miles. Additional species, 1.

The river bridge was down at San Buenaventura but after some

manœuvring we succeeded in making the crossing. The road leads up from the river over a thickly wooded ridge where we found the *Phainopepla* very common. Four eggs of the Anthony Towhee, which had the appearance of advanced incubation, were also noticed in a nest a few feet up among clinging vines on a tree trunk. Santa Barbara was reached at 4.45 P. M., we having been three and a half hours on the way.

June 3.—To Santa Maria, 85 miles. Additional species, 1.

To-day's route took us along the coast as far as Gaviota, and in this district we noted the Roadrunner as by no means uncommon. At Gaviota we struck inland, through a winding pass of the same name, into the Santa Ynez and Los Olivos country. The region is very fertile and heavily oaked, and such birds as the Desert Sparrow Hawk, California Jay, Red-shafted Flicker, California Woodpecker, Western Bluebird, Black-headed Grosbeak, and others which frequent these woods, were found in abundance. For a second time, near Los Olivos, the California Condor was seen, which inclines one to the belief that the bird is really more common than is supposed. As before, the bird was among a flock of the smaller species. The day's run was ended at Santa Maria.

June 4.—To San Luis Obispo, 28 miles. Additional species, 1.

Troubles with the carbureter caused a late start and frequent stops on the trip to-day. We ran out of the rolling country at Arroyo Grande and thence westward to the seaside resort of Pismo. The road skirts the broad level beach and then carried us along high rocky cliffs, while below us there lay as a poet¹ has said,

Stretching out in endless line like regiments of war,
The snow-plumed waves in rank and file were charging on the shore
With a thunderous roar and echo deep as cannon in the fray,
While rose along the fighting line the battlecloud of spray.

But before long a damp chilling fog enveloped us and we, glad to leave scenery and sentiment, headed with all speed along the road which, leading in a northeasterly direction, brought us into San Luis Obispo.

¹ Y. S. Notlim.

June 5.—To the First Crossing of the San Antonio River, 55 miles. Additional species, 1.

A short distance out of San Luis Obispo a summit of some height is reached and the country becomes heavily wooded, principally with oaks, and supports an abundant bird life, the California Thrasher being among the most numerous species. At San Miguel we had intended to take a road to the east via Indian Valley, a detour of thirty miles or more, in order to evade the sandy tracts along the Salinas River, but we were inveigled by a resident of the town to take a much shorter route to the west on which, he informed us, but one small stream was to be crossed. Alas! we had unknowingly placed our faith in that arch enemy of the motorist, the stable-keeper. A really fine road led us away from the town and we bowled along merrily for a dozen miles or so until, after a sudden descent, we were dumped, almost before we knew it, in the broad sand beds of the Nacimiento River. Being rather quick-sandy, the machine, from its weight, sank to the hubs, and even with the entire load off we were unable to extricate it. Luckily a camping party with a pair of horses came to our aid, and after considerable preliminary work we reached the opposite bank. We had proceeded but a few miles when we were both surprised and disgusted to come to the banks of another bridgeless river, more formidable to ford than the last. Every effort was made to shoot the empty auto across with a flying start but it proved a failure and stuck in the sandy river bottom. We awaited the campers, who were following, and who again delivered us, after which a general camp was made on the west bank for the night. Words failed, however, to express our amazement when they informed us that the San Antonio required to be crossed twice more, and the possibilities of a serious breakdown in this almost uninhabited country made these troublesome tidings hang like a cloud of gloom over the evening camp-fire.

June 6.—To Salinas, 93 miles. Additional species, 1.

Together with the campers, we set forth at daybreak this morning, determined to put the river crossings on the right side of us at the earliest possible moment. The appearance of the third ford was by no means cheering; the water, several feet in depth, did not deter us, but the sand was very soft and deep. Our friends

preceded us and, to cap the climax, one of their horses became balky in mid-stream, leaving us all in a rather serious predicament. One of the party rode bareback to Pleyto, the nearest town, where a plow-team was engaged, with the aid of which our various vehicles reached the opposite shore in safety. During the interim I took advantage of the occasion to reconnoiter along the river banks. Besides the recurrent species I noticed a new bird in the Rock Wren, which was rather numerous. The last crossing of the San Antonio, at Pleyto, was easily made on the run, and without a barrier before us we proceeded to make up for lost time. Becoming short of lubricating oil we were fortunately able to obtain some from an 'up-to-date' farmer who possessed a gasoline engine. Jolon, about the highest point, was reached, and some miles further on a sharp descent was made into the broad, wind-swept Salinas Valley. A sand-storm of a nature that made travelling almost impossible, continued until we passed Soledad. These twenty miles through an exceptionally barren country were the most dismal on the trip, scarcely any life being visible. From Soledad, cold moist fog replaced the sand and, wrapped in blankets, we sped into Salinas.

June 7.—To Pacific Grove, 20 miles. Additional species, 1.

What was intended to be a short side trip, but which proved to be a long one, was taken this morning. The spin to Pacific Grove, which lies on the southern end of Monterey Bay, was only a matter of an hour or so, but when we arrived at the very door of the bungalow we were to occupy the transmission shaft, probably weakened in river fording, broke, and with a repetition of our Visalia experience at hand I complacently reserved sufficient pages in my note book for a week's observations on Pacific Grove birdways.

June 8 to 15.—Pacific Grove. Additional species, 19.

The 'Grove,' as the town is commonly called, is prettily hid away among an extensive and dense growth of patriarchal pines, on a peninsula which juts into the sea. Salmon fishing, when the weather allowed, was indulged in and frequent rambles were made to all points of the compass. The extremely foggy weather, which at the Grove obscures the sun for days, imparts a gloomy, solemn aspect to the pine woods, the dampest and mossiest woodland I know of, but notwithstanding the unpropitious weather

conditions the locality is rich in cheery bird life. Most in evidence were the Coast Jay, Santa Cruz Chickadee, California Bushtit, Point Pinos Junco, and the Russet-backed Thrush, while many other species occurred in less numbers. Along the Carmel River, less than a dozen miles south, where the pines were wholly absent, we found most of the above species lacking, and in place of them were the lower-zone birds, such as we had met with during the greater part of our coastal journey. A local list for the week gave us forty-three species.

June 16.—To Salinas, 20 miles. Additional species, 0.

Our belated casting arrived this morning and after installing it we had sufficient time to make Salinas.

June 17.—To San Francisco, 126 miles. Additional species, 0.

The closing run of the trip was through a country with which I was previously familiar but the life zones being the same as in regions already traversed, we failed to add any new species to the list. San Francisco was entered about dusk and the pioneer ornithological expedition propelled by power came to an end.

List of Species Observed.

It is surprising that on a trip of over eleven hundred miles we did not meet with such common birds as *Empidonax difficilis*, *Nuttallornis borealis*, and various others. As this list pertains exclusively to this trip, only the species actually observed on it are included.

1. ***Cephus columba***. PIGEON GUILLEMOT.—One seen while salmon fishing in Monterey Bay.
2. ***Uria californica***. CALIFORNIA MURRE.—Several seen at Monterey and Pacific Grove.
3. ***Larus occidentalis***. WESTERN GULL.—Seen at various points along the coast from Monterey southward.
4. ***Larus heermanni***. HEERMANN GULL.—Common along the coast, — at Long Beach, Gaviota, Pacific Grove, etc.
5. ***Sterna forsteri***. FORSTER TERN.—Abundant in the vicinity of Los Baños and Firebaugh.
6. ***Hydrochelidon surinamensis***. BLACK TERN.—Common in the vicinity of Los Baños.
7. ***Phalacrocorax penicillatus***. BRANDT CORMORANT.

8. *Phalacrocorax pelagicus resplendens*. BAIRD CORMORANT.— Both noted on Monterey Bay.

9. *Pelecanus erythrorhynchos*. AMERICAN WHITE PELICAN.— Immense flocks noted near Los Baños and Firebaugh; also seen near Gorman Station.

10. *Pelecanus californicus*. CALIFORNIA BROWN PELICAN.— A number seen at Long Beach.

11. *Querquedula cyanoptera*. CINNAMON TEAL.— Common about Los Baños and Firebaugh.

12. *Dafila acuta*. PINTAIL DUCK.— Several seen south of Los Baños.

13. *Plegadis guarauna*. WHITE-FACED GLOSSY IBIS.— A large band of ibises, seen near Gorman Station, supposed to be this species.

14. *Ardea herodias herodias*. GREAT BLUE HERON.— Found abundantly in the San Joaquin Valley in suitable localities from Stockton to Porterville.

15. *Butorides virescens anthonyi*. ANTHONY GREEN HERON.— Noted near Stockton, and common along the streams about Visalia.

16. *Gallinula galeata*. FLORIDA GALLINULE.— Found east of Firebaugh.

17. *Fulica americana*. AMERICAN COOT.— Noted near Merced, Firebaugh, and Gorman Station.

18. *Steganopus tricolor*. WILSON PHALAROPE.— Los Baños.

19. *Recurvirostra americana*. AMERICAN AVOCET.— Los Baños.

20. *Himantopus mexicanus*. BLACK-NECKED STILT.— Very common about Los Baños and Firebaugh.

21. *Actitis macularia*. SPOTTED SANDPIPER.— Found along the streams at Visalia and also near Porterville.

22. *Ægialitis vocifera*. KILLDEER.— Met with off and on from Merced to Porterville, and also at Gorman Station and at several points on the coast.

23. *Lophortyx californicus californicus*. CALIFORNIA PARTRIDGE. This coast form we found scarce except about Monterey.

24. *Lophortyx californicus vallicolus*. VALLEY PARTRIDGE.— Where the road leading down the San Joaquin Valley edged along the foothills, we found this bird common, as at Kingsbury, Visalia, and Porterville; also noted it in the mountains at Lebec and Gorman Station.

25. *Zenaidura macroura*. MOURNING DOVE.— A common bird throughout almost the entire trip.

26. *Gymnogyps californianus*. CALIFORNIA VULTURE.— Two records, Calabassas and Los Olivos.

27. *Cathartes aura*. TURKEY VULTURE.— Common along practically the entire route.

28. *Circus hudsonius*. MARSH HAWK.— Seen at several points in the San Joaquin Valley,— Stockton, Merced, etc.

29. *Accipiter cooperi*. COOPER'S HAWK.— Noted at several points between Stockton and Madera.

30. *Buteo borealis calurus*. WESTERN RED-TAILED HAWK.—Seen at various points,—Porterville, Lebec, Gorman Station, Pacific Grove, etc., and found nesting at Visalia.

31. *Buteo swainsoni*. SWAINSON HAWK.—Merced and Firebaugh.

32. *Falco sparverius phalæna*. DESERT SPARROW HAWK.—Common in most places along the entire trip but particularly so in the dense oak woods about Los Olivos, Paso Robles, and Pleyto.

33. *Megascops asio bendirei*. CALIFORNIA SCREECH OWL.—Visalia.

34. *Speotyto cunicularia hypogæa*. BURROWING OWL.—Observed in San Joaquin Valley and found abundant in a rocky barren tract some miles south of San Jose.

35. *Geococcyx californianus*. ROADRUNNER.—Naples to Gaviota.

36. *Ceryle alcyon*. BELTED KINGFISHER.—Only two records of this common bird—Kingsbury and Carmel River.

37. *Dryobates villosus hyloscopus*. CABANIS WOODPECKER.—San Buenaventura and Pacific Grove.

38. *Dryobates pubescens turati*. WILLOW WOODPECKER.—Monterey.

39. *Xenopicus graviorstris*. SOUTHERN WHITE-HEADED WOODPECKER.—Between Fort Tejon and Lebec we saw at close range three individuals, although Mr. Joseph Grinnell, in his list of the birds of Fort Tejon (Condor, Vol. VII, p. 13), evidently failed to find them. While we took no skins it is probable the birds from this locality will be found to be this variety, with the larger bill.

40. *Melanerpes formicivorus bairdi*. CALIFORNIA WOODPECKER.—Noted at Kingsbury, Visalia, and Porterville in the San Joaquin Valley and coastwise, especially between Gaviota and Los Olivos where it was very abundant.

41. *Colaptes cafer collaris*. RED-SHAFTED FLICKER.—Where there was any timber in the San Joaquin Valley we found this bird, and likewise on the rest of the journey. A nest with almost full-fledged young was noted at Firebaugh.

42. *Chordeiles virginianus hesperis*. PACIFIC NIGHTHAWK.—A single bird seen near Merced.

43. *Aëronautes melanoleucus*. WHITE-THROATED SWIFT.—San Francisquite Cañon above Saugus.

44. *Calypte anna*. ANNA HUMMINGBIRD.—Visalia, Porterville, Pacific Grove, etc.

45. *Selasphorus alleni*. ALLEN HUMMINGBIRD.—Monterey.

46. *Tyrannus verticalis*. ARKANSAS KINGBIRD.—Excepting in the deserts and marshes this was the commonest bird in the San Joaquin Valley but scarce coastwise. A nest with three large young observed at Visalia.

47. *Myiarchus cinerascens cinerascens*. ASH-THROATED FLYCATCH-

ER.—Noted at Firebaugh, Visalia, Porterville, Lebec, and Gorman Station. It also occurs coastwise, but we did not find it on this trip.

48. *Sayornis nigricans*. BLACK PHOEBE.—Common throughout most of the trip. Nearly every bridge had its pair of these birds, and about Visalia I noticed about half a dozen nests with eggs placed in sluice boxes through which the water coursed uncomfortably close to the mud-made domiciles.

49. *Contopus richardsoni richardsoni*. WESTERN WOOD PEWEE.—Not uncommon in the higher ranges — Lebec and Gorman Station — as well as in timbered districts in the lower valleys — Visalia, Pacific Grove, etc.

50. *Otocoris alpestris actia*. MEXICAN HORNED LARK.—Abundant on the treeless areas of the San Joaquin Valley.

51. *Cyanocitta stelleri carbonacea*. COAST JAY.—Very common about Pacific Grove in the pine woods.

52. *Aphelocoma californica californica*. CALIFORNIA JAY.—Common from Kingsburg to Porterville in the San Joaquin Valley and in most places along the coast.

53. *Aphelocoma californica obscura*. BELDING JAY.—According to a new ruling the bird about Los Angeles (and southward), which we found fairly common, has been separated from our northern species.

54. *Corvus corax sinuatus*. AMERICAN RAVEN.—Found from Gorman Station southeast to Elizabeth Lake.

55. *Corvus brachyrhynchos hesperis*. CALIFORNIA CROW.—Firebaugh and Pacific Grove, not very common.

56. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.—Common along the slough near Stockton.

57. *Agelaius phoeniceus neutralis*. SAN DIEGO RED-WINGED BLACKBIRD.—Long Beach.

58. *Agelaius gubernator californicus*. BICOLORED BLACKBIRD.

59. *Agelaius tricolor*. TRICOLORED BLACKBIRD.—Both noted at various points from Stockton to Porterville, breeding (eggs and young).

60. *Sturnella neglecta*. WESTERN MEADOWLARK.—Observed commonly and pretty generally throughout the trip in open country except marsh and desert lands.

61. *Icterus cucullatus nelsoni*. ARIZONA HOODED ORIOLE.—Found common in Los Angeles and vicinity and in places as far north as San Buenaventura.

62. *Icterus bullocki*. BULLOCK ORIOLE.—Wherever there were trees in the San Joaquin Valley we found this oriole very abundant but it was scarce along the coast. Found breeding commonly at Firebaugh, Colony Center, Visalia, etc.

63. *Euphagus cyanocephalus*. BREWER BLACKBIRD.—A common bird coastwise but less so inland where it was noted at Merced and Gorman Station.

64. *Carpodacus purpureus californicus*. CALIFORNIA PURPLE FINCH.—Firebaugh and Pacific Grove; not very abundant.

65. *Carpodacus mexicanus frontalis*. HOUSE FINCH.—The commonest bird on the trip; we found it nearly everywhere.

66. *Astragalinus tristis salicamans*. WILLOW GOLDFINCH.—Rather uncommon; found at Kingsburg, Visalia, Porterville, and Pacific Grove.

67. *Astragalinus psaltria hesperophilus*. GREEN-BACKED GOLDFINCH.—More abundant than the preceding species. Found in the wooded sections of the San Joaquin as far as Porterville, and at various points on the coast (Pacific Grove, etc.).

68. *Astragalinus lawrencei*. LAWRENCE GOLDFINCH.—One seen at Bakersfield, very numerous from Fort Tejon to Gorman Station, and less so on the coast between Gaviota and Los Olivos.

69. *Passer domesticus*. EUROPEAN HOUSE SPARROW.—Common about the towns.

70. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW.—Wherever there were oak woods on the trip we were pretty sure to find this a common species.

71. *Zonotrichia leucophrys nuttalli*. NUTTALL SPARROW.—Common at Pacific Grove.

72. *Spizella socialis arizonæ*. WESTERN CHIPPING SPARROW.—Noted at Visalia, Porterville, and Pacific Grove.

73. *Junco hyemalis pinosus*. POINT PINOS JUNCO.—Very common about Pacific Grove in pine woods.

74. *Melospiza cinerea heermanni*. HEERMANN SONG SPARROW.—Along streams in the San Joaquin Valley this song sparrow was a common bird.

75. *Melospiza cinerea santæcrucis*. SANTA CRUZ SONG SPARROW.—Pacific Grove and northward.

76. *Melospiza cinerea cooperi*. SAN DIEGO SONG SPARROW.—Long Beach, San Buenaventura, etc.

77. *Pipilo maculatus megalonyx*. SPURRED TOWHEE.—Found in the San Joaquin at Firebaugh, Kingsburg (breeding), Visalia, and Porterville.

78. *Pipilo maculatus atratus*. SAN DIEGO TOWHEE.—We noticed towhees which would be referable to this form about Los Angeles although its claim to subspecific rank is disputed.¹

79. *Pipilo maculatus falcifer*. SAN FRANCISCO TOWHEE.—Found at various points from Pacific Grove north.

80. *Pipilo crissalis crissalis*. CALIFORNIA TOWHEE.—Kingsburg, Visalia (breeding), and Porterville in the San Joaquin Valley. Very common along the coast from Pacific Grove north.

81. *Pipilo crissalis senicula*. ANTHONY TOWHEE.—Abundant along the southern coast and as far as we went inland (Pasadena, etc.).

¹This form is now conceded to be not separable from *megalonyx*. Cf. Ridgway, Condor, VIII, No. 4, p. 100, July 15, 1906.—EDD.

82. *Zamelodia melanocephala capitalis*. CALIFORNIA BLACK-HEADED GROSBEEK.— Found pretty generally throughout the trip; common.
83. *Guiraca caerulea lazula*. WESTERN BLUE GROSBEEK.— Common about Visalia (breeding) to Porterville.
84. *Cyanospiza amœna*. LAZULI BUNTING.— Visalia and Porterville.
85. *Progne subis hesperis*. WESTERN MARTIN.— Stockton.
86. *Petrochelidon lunifrons lunifrons*. CLIFF SWALLOW.— Common in suitable places throughout the trip.
87. *Hirundo erythrogastra palmeri*. WESTERN BARN SWALLOW. This was most abundant inland while the preceding species was most abundant along the coast.
88. *Iridoprocne bicolor vespertina*. WESTERN TREE SWALLOW.— Firebaugh and Visalia.
89. *Riparia riparia*. BANK SWALLOW.— San Pedro.
90. *Phainopepla nitens*. PHAINOPEPLA.— Above Saugus (San Francisquite Cañon) and San Buenaventura.
91. *Lanius ludovicianus gambeli*. CALIFORNIA SHRIKE.— Common in the San Joaquin Valley but less so along the coast.
92. *Vireo gilvus swainsoni*. WESTERN WARBLING VIREO.— Kingsburg and Visalia.
93. *Dendroica æstiva brewsteri*. CALIFORNIA YELLOW WARBLER.— Abundant in suitable localities throughout the trip; found breeding commonly about Visalia.
94. *Geothlypis trichas arizela*. PACIFIC YELLOWTHROAT.— One record, Visalia.
95. *Icteria virens longicauda*. LONG-TAILED CHAT.— Kingsburg (breeding), Visalia, and Porterville.
96. *Wilsonia pusilla pileolata*. PILEOLATED WARBLER.— Pacific Grove.
97. *Mimus polyglottos leucopterus*. WESTERN MOCKINGBIRD.— Noticed at Madera, and found commonly about Los Angeles but not further north on the coast than San Buenaventura.
98. *Toxostoma redivivum redivivum*. CALIFORNIA THRASHER.— Oresta, Pacific Grove, etc.
99. *Toxostoma redivivum pasadensis*. PASADENA THRASHER.— Elizabeth Lake (breeding).
100. *Salpinctes obsoletus*. ROCK WREN.— Second crossing of the San Antonio River.
101. *Troglodytes ædon parkmani*. PARKMAN WREN.— Monterey.
102. *Sitta pygmæa pygmæa*. PYGMY NUTHATCH.— Pacific Grove.
103. *Bæolophus inornatus inornatus*. PLAIN TITMOUSE.— Nipomo and second crossing of the San Antonio River.
104. *Parus rufescens barlowi*. SANTA CRUZ CHICKADEE.— Pacific Grove, abundant.
105. *Chamæa fasciata henshawi*. PALLID WREN-TIT.— San Francisquite Cañon and Los Angeles (breeding, young).

106. *Chamaea fasciata intermedia* Grinnell or *rufula* Ridgway. INTERMEDIATE WREN-TIT (OR RUDDY WREN-TIT).—Pacific Grove and Monterey.

107. *Psaltriparus minimus minimus*. BUSH-TIT.—Pacific Grove (breeding, young).

108. *Psaltriparus minimus californicus*. SACRAMENTO BUSH-TIT.—Firebaugh (breeding), Visalia.

109. *Hylocichla ustulata ustulata*. RUSSET-BACKED THRUSH.—Visalia and Pacific Grove.

110. *Hylocichla aonalaschkæ slevini*. MONTEREY HERMIT THRUSH.—Pacific Grove.

111. *Sialia mexicana occidentalis*. WESTERN BLUEBIRD.—Porterville, Lebec, Gorman Station, Pacific Grove, etc.

NOTES ON BIRDS OF SILVER CITY, NEW MEXICO.

BY JOHN T. SHARPLESS HUNN.

THE following field notes were recorded within a ten miles radius, taking Silver City as the center. The period of time covered was between the first of September and the sixth of May, during the years 1903-4 and 1904-5. Although I would be absent part of the time in one year, I always managed to be present during this interval in the succeeding year, consequently an observation was made every day within the period.

Silver City, the county seat of Grant County, is situated in a 'draw' at an altitude of about 5,300 feet. It is surrounded by low foothills that were once covered with juniper and scrub oak, but they have long since been denuded by the merciless Mexican woodcutter. Now, the hills lie bare and brown, save here and there for an oasis of 'cholla' cacti or a group of yuccas, and afford scant shelter for bird life. The principal streets of the city are lined with cottonwoods, and many of the residents make a pretence at gardening. This brings some few species into the town, but the scarcity of water and lack of reservoirs keep those that are less confiding at a distance.

Perhaps the most favorable location is at Coleman's Ranch, distant about three miles, which contains the only original timber within eight miles. From Pinos Altos north and just inside the limits of these radii, there is still mile upon mile of pine forest. But this is the nearest heavy timber. Coleman's Ranch has a fenced area of 320 acres, and part of it is thickly wooded with juniper, piñon, scrub oak, and smaller brushwood. The remaining part (and larger half) is mostly open country, but here and there are places well covered with cacti and yuccas. There are two small reservoirs for irrigation purposes, shaded by cottonwoods and about two acres of orchard.

The climatic conditions are very similar to those of other points in the Southwest of equal altitude, cold nights and warm days predominating, somewhat modified in summer by cool nights and hot days. During the two winters mentioned, the thermometer only twice registered so low as seven degrees at Coleman's Ranch. The winter of 1904-5 was unusually mild and wet and was a winter of disastrous floods. The oldest inhabitants had never known a season like it. There was so much water on the plains that birds were not forced to come about the reservoirs as they had been the preceding year, the effect being that species appearing as abundant one year were only casually noted the next winter. Usually the rainfall is very light and almost wholly confined to the summer months.

Before bringing this introduction to a close, I feel I must again thank John E. Coleman and 'Doom' Coleman for their assistance in many instances; not only while I was a guest at their ranch, but as well when hunting with them in the surrounding mountain ranges. They were both untiring in their efforts to help me add new species to my daily check-list.

Following is a list of species recorded:

1. ***Mareca americana***. BALDPATE.— One shot on Coleman's Ranch, April 15.
2. ***Nettion carolinensis***. GREEN-WINGED TEAL.— Common during winter and spring months.
3. ***Querquedula cyanoptera***. CINNAMON TEAL.— A common spring migrant.
4. ***Ardea herodias***. GREAT BLUE HERON.— One shot May 1, two seen March 21, Coleman's Ranch.

5. *Oxyechus vociferus*. KILLDEER.—Common, arriving March 20.

6. *Callipepla squamata*. SCALED PARTRIDGE.—Common. Preferring the open country to the timber. Covies of from thirty to ninety birds are not uncommon on the plains below Silver City.

7. *Lophortyx gambelii*. GAMBEL'S PARTRIDGE.—As common as the preceding species both on the plains and in the timber. A covey of about fifty birds regularly wintered in Coleman's pasture and during very cold weather, after a fall of snow, it was not unusual for them to feed near the house with the chickens.

8. *Columba fasciata*. BAND-TAILED PIGEON.—Although an abundant bird in the mountain ranges north of Silver City, I have never seen it within the ten mile radius. However, during the summer of 1904, Mr. Coleman wrote me that the wooded section of his pasture was alive with them. It was some time in August, and they remained several days regardless of the fact that they were repeatedly shot.

9. *Zenaidura macroura*. MOURNING DOVE.—Common everywhere. A few remain throughout the winter in sheltered localities.

10. *Cathartes aura*. TURKEY VULTURE.—Common. Arriving March 25, leaving in October.

11. *Circus hudsonius*. MARSH HAWK.—Not uncommon at Coleman's Ranch, especially during the fall months.

12. *Accipiter velox*. SHARP-SHINNED HAWK.—Common resident.

13. *Accipiter cooperi*. COOPER'S HAWK.—I saw but one specimen which was brought to me from the Diamond Bar Ranch.

14. *Accipiter atricapillus*. AMERICAN GOSHAWK.—Found a dead goshawk in the Mimbres Mountains in midwinter. I saw another specimen in Silver City at a local taxidermist's shop. I was told it had been killed near the town.

15. *Buteo borealis calurus*. WESTERN REDTAIL.—This is the commonest hawk of the country. There is hardly a day when they are not seen soaring over the city and surrounding plains. It breeds regularly on Coleman's Ranch.

16. *Archibuteo ferrugineus*. FERRUGINOUS ROUGH-LEG.—Not uncommon on the plains below Silver City. On January 25, I picked up a dead bird of this species near Coleman's Ranch; again on March 30 I noticed three or four at one time circling over the plain.

17. *Aquila chrysaetos*. GOLDEN EAGLE.—Occasionally seen near Silver City during the fall, winter, and spring months. Common in the mountains.

18. *Falco richardsoni*. RICHARDSON'S MERLIN.—One specimen killed on Coleman's Ranch and three others seen; all in midwinter.

19. *Falco sparverius phalaena*. DESERT SPARROW HAWK.—A very common resident, although less common in winter.

20. *Strix pratincola*. BARN OWL.—One was shot by J. E. Coleman on September 2. This owl appeared for several nights flying about the house. No others were seen.

21. *Asio wilsonianus*. AMERICAN LONG-EARED OWL.— Five seen on January 18, and one on January 21, on the ranch.

22. *Megascops asio cineraceus*. MEXICAN SCREECH OWL.— Common resident.

23. *Bubo virginianus pallescens*. WESTERN HORNED OWL.— Common resident. One nest that I discovered about two miles north of Silver City contained two downy young. This was on April 20.

24. *Speotyto cunicularia hypogæa*. BURROWING OWL.— Locally common. One colony, about four miles east of Silver City, composed of some three or four owls. Further south on the plain they are quite often seen.

25. *Geococcyx californianus*. ROAD-RUNNER.— Common resident.

26. *Ceryle alcyon*. BELTED KINGFISHER.— A few seen during the spring and fall months. Not common.

27. *Dryobates villosus hyloscopus*. CABANIS'S WOODPECKER.— Rather common on Coleman's Ranch throughout the months recorded.

28. *Dryobates scalaris bairdi*. TEXAN WOODPECKER.— Very common resident.

29. *Sphyrapicus varius nuchalis*. RED-NAPE SAPSUCKER.— Fairly common about Silver City during the winter and spring.

30. *Sphyrapicus thyroideus*. WILLIAMSON'S SAPSUCKER.— Two specimens were taken on Coleman's Ranch March 22. In April of the same year, I noticed this handsome woodpecker in the Mimbres Range at an altitude of 8,000 feet.

31. *Melanerpes formicivorus*. ANT-EATING WOODPECKER.— A common resident from Piños Altos north.

32. *Asyndesmus torquatus*. LEWIS'S WOODPECKER.— This woodpecker is probably locally common throughout Grant County, but I have only noticed it near Pinos Altos, where it is to be found in small flocks.

33. *Colaptes cafer collaris*. RED-SHAFTED FLICKER.— Common resident.

34. *Tyrannus verticalis*. ARKANSAS KINGBIRD.— Common during spring migration after April 12, but rapidly gives place to the following species.

35. *Tyrannus vociferans*. CASSIN'S KINGBIRD.— Arrives a few days later than *verticalis*. A common summer resident, nesting in the town and in the country. Leaves for the south about October 10.

36. *Myiarchus cinerascens*. ASH-THROATED FLYCATCHER.— Arrives about May 6. Collected one specimen on that day, and several others were seen later.

37. *Sayornis saya*. SAY'S PHOEBE.— Common resident, though less common in winter.

38. *Sayornis nigricans*. BLACK PHOEBE.— A migrant during March and April; not common.

39. *Empidonax wrightii*. WRIGHT'S FLYCATCHER.— Arrives about April 15. Common during the remainder of the month. Five seen on May 4.

40. *Pyrocephalus rubineus mexicanus*. VERMILION FLYCATCHER.— Arrives April 15 and frequently seen till April 29. Also noted on September 29.
41. *Otocoris alpestris occidentalis*. Abundant throughout the year.
42. *Cyanocitta stelleri diademata*. LONG-CRESTED JAY.— Common about Pinos Altos.
43. *Aphelocoma woodhouseii*. WOODHOUSE'S JAY.— Very common resident about Silver City.
44. *Aphelocoma sieberii arizonæ*. ARIZONA JAY.— Common resident.
45. *Corvus corax sinuatus*. AMERICAN RAVEN.— Casual.
46. *Corvus cryptoleucus*. WHITE-NECKED RAVEN.— Resident. Sometimes in immense flocks.
47. *Cyanocephalus cyanocephalus*. PIÑON JAY.— Abundant during fall migration in September. A few winter near Pinos Altos.
48. *Molothrus ater*. COWBIRD.— Casual in spring.
49. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.— Fairly common during spring and fall migrations. Sometimes common in Silver City streets in winter.
50. *Agelaius phœniceus fortis*. NORTHERN RED-WING.— Common winter visitant in Silver City streets.
51. *Sturnella magna neglecta*. WESTERN MEADOWLARK.— Winters about Silver City in large numbers.
52. *Icterus parisorum*. * SCOTT'S ORIOLE.— A specimen was sent to me from Coleman's Ranch in August. It is probably a summer resident.
53. *Icterus cucullatus nelsoni*. ARIZONA HOODED ORIOLE.— Arrives April 13, and was common till I left on May 6.
54. *Icterus bullocki*. BULLOCK'S ORIOLE.— Arrives April 30, common May 6.
55. *Euphagus cyanocephalus*. BREWER'S BLACKBIRD.— Common from September 1 to May 6.
56. *Hesperiphona vespertina montanus*. WESTERN EVENING GROSBIRD.— These birds were first noted on February 18, 1905, when a flock of thirty were seen feeding on maple tree buds in Silver City. From this time on they were in evidence daily, and on March 5 the number was augmented by at least thirty more. This flock of sixty continued with us till March 29, the last date on which they were seen.
57. *Carpodacus mexicanus frontalis*. HOUSE FINCH.— Abundant resident.
58. *Passer domesticus*. HOUSE SPARROW.— By no means a common bird, but as many as five have been seen in Silver City at one time; it is quite certain the sparrow has arrived to stay awhile.
59. *Spinus pinus*. PINE SISKIN.— I have noted the siskin every month in the year except June, July and August; at no time were they common near Silver City.
60. *Calcarius ornatus*. CHESTNUT-COLLARED LONGSPUR.— Abundant during the winter months on the plains. They leave for the north about April 1.

61. *Poœcetes gramineus confinis*. WESTERN VESPER SPARROW.— A common bird from September 19 to April 30. Probably most of them breed north of here. During severely cold weather they become scarce, but a few, at least, are to be found every winter month.
62. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW.— Arrives April 19 and becomes very common by May 6.
63. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.— An abundant winter visitant, leaving for the north about May 1.
64. *Spizella socialis arizonæ*. WESTERN CHIPPING SPARROW.— Common resident.
65. *Junco hyemalis connectens*. SHUFELDT'S JUNCO.— Abundant winter visitant. Seen as late as April 18.
66. *Junco mearnsi*. PINK-SIDED JUNCO.— An equally abundant winter visitant. Seen as late as April 18.
67. *Junco caniceps*. GRAY-HEADED JUNCO.— Fairly common winter visitant. Seen as late as May 6.
68. *Amphispiza bilineata deserticola*. DESERT SPARROW.— Very common summer resident. A few winter on the cactus-covered plains.
69. *Amphispiza belli nevadensis*. SAGE SPARROW.— Winter visitant. Seen in small numbers between December 28 and March 1.
70. *Melospiza lincolni*. LINCOLN'S SPARROW.— Migrant about October 23, and between March 11 and April 15.
71. *Pipilo maculatus arcticus*. ARCTIC TOWHEE.— Common winter visitant. Seen as late as April 22.
72. *Pipilo fuscus mesoleucus*. CAÑON TOWHEE.— Abundant resident.
73. *Oreospiza chlorura*. GREEN-TAILED TOWHEE.— Common summer resident from April 12 to October 2.
74. *Zamelodia melanocephala*. BLACK-HEADED GROSEBEAK.— Arrives from the south May 6.
75. *Calamospiza melanocorys*. LARK BUNTING.— Common from October 2 to May 6.
76. *Piranga ludoviciana*. LOUISIANA TANAGER.— Arrives about April 30 as a transient.
77. *Progne subis*. PURPLE MARTIN.— Noted martins in Silver City between May 29 and June 18; it is evidently a common summer resident.
78. *Petrochelidon lunifrons*. CLIFF SWALLOW.— Common summer resident, arriving in April.
79. *Hirundo erythrogastra*. BARN SWALLOW.— Common summer resident, arriving April 21.
80. *Tachycineta thalassina lepida*. VIOLET-GREEN SWALLOW.— This lovely swallow reaches Silver City about April 23, and becomes a common migrant by the first of May.
81. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE.— Common resident.
82. *Vireo gilvus*. WARBLING VIREO.— Arrives from the south about May 4.

83. *Helminthophila virginæ*. VIRGINIA'S WARBLER.—As a migrant, it is common between April 19 and April 29 on Coleman's Ranch.
84. *Helminthophila celata*. ORANGE-CROWNED WARBLER.—A common migrant between April 18 and May 6.
85. *Dendroica æstiva sonorana*. SONORA YELLOW WARBLER.—Common after April 30.
86. *Dendroica auduboni*. AUDUBON'S WARBLER.—Abundant as a migrant from April 17 to May 6.
87. *Dendroica nigrescens*. BLACK-THROATED GRAY WARBLER.—Common migrant April 18 to May 6.
88. *Sieurus noveboracensis notabilis*. GRINNELL'S WATER-THRUSH.—Two specimens recorded from Coleman's Ranch on May 6, 1904.
89. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.—A common migrant from April 13 to May 6.
90. *Wilsonia pusilla pileolata*. PILEOLATED WARBLER.—Abundant as a migrant from April 16 to May 6.
91. *Oroscoptes montanus*. SAGE THRASHER.—Rather common as a migrant during April; some remain throughout the winter months.
92. *Mimus polyglottos leucopterus*. WESTERN MOCKINGBIRD.—Very common summer resident.
93. *Toxostoma curvirostre*. CURVED-BILLED THRASHER.—An abundant summer resident; a few winter on the plains.
94. *Heleodytes brunneicapillus couesi*. CACTUS WREN.—Common resident, though less common in winter.
95. *Salpinctes obsoletus*. ROCK WREN.—Resident. Nesting in rock crevices near the Silver City railway station.
96. *Catherpes mexicanus conspersus*. CAÑON WREN.—The Cañon Wren visits Silver City in midwinter and is heard singing from the house-tops. However, it is not common south of the Pinos Altos country.
97. *Thryomanes bewickii leucogaster*. BAIRD'S WREN.—I have shot this wren on Coleman's Ranch in January and in May, so I presume they are resident; they are at no time common.
98. *Troglodytes ædon aztecus*. WESTERN HOUSE WREN.—Arrives about April 28 and becomes quite common by May 6.
99. *Certhia familiaris montana*. ROCKY MOUNTAIN CREEPER.—Casually met with in the Pinos Altos country.
100. *Sitta carolinensis aculeata*. SLENDER-BILLED NUTHATCH.—Abundant from Pinos Altos north. Casual on Coleman's Ranch.
101. *Sitta pygmæa*. PYGMY NUTHATCH.—Abundant at Pinos Altos but I have never seen them at Coleman's Ranch.
102. *Bæolophus inornatus griseus*. GRAY TITMOUSE.—Common resident.
103. *Bæolophus wollweberi*. BRIDLED TITMOUSE.—Rather rare; only found north of Pinos Altos.
104. *Parus gambeli*. MOUNTAIN CHICKADEE.—Casual at Coleman's Ranch; abundant near Pinos Altos.

105. *Psaltiriparus plumbeus*. LEAD-COLORED BUSH-TIT.— Abundant about Silver City during fall, winter, and spring.

106. *Regulus calendula*. RUBY-CROWNED KINGLET.— Abundant migrant and common winter visitant throughout the country.

107. *Polioptila cærulea obscura*. WESTERN GNATCATCHER.— Casual on Coleman's Ranch in April and May.

108. *Myadestes townsendii*. TOWNSEND'S SOLITAIRE.— Rather rare in the Pinos Altos country.

109. *Hylocichla guttata auduboni*. AUDUBON'S HERMIT THRUSH.— Arriving from the south about May 6.

110. *Merula migratoria propinqua*. WESTERN ROBIN.— Common as a migrant during March and April. The Western Robin breeds abundantly in the mountains north of Pinos Altos.

111. *Sialia mexicana bairdi*. CHESTNUT-BACKED BLUEBIRD.— Very common migrant and winter resident, October 1 to April 10.

112. *Sialia arctica*. MOUNTAIN BLUEBIRD.— Common resident.

CONCERNING THE THICK-BILLED PARROT.

BY W. H. BERGTOLD.

THE writer spent several weeks in the fall of 1903 and 1904 in northern Mexico, camped in the Sierra Madra Mountains. The first visit was to the region west of Cases Grandes, wherein are located various Mormon colonies, beginning at Colonia Dublan in the east, and ending at Chuichupa in the west, all on the Gulf side of the Sierra Madra watershed. It was in this region that Mr. Wilmot W. Brown discovered and collected the Thick-billed Parrot's (*Rhynchopsitta pachyrhyncha*) eggs mentioned by Mr. Thayer in his notes on pages 223 and 224 of 'The Auk' of April, 1906.

This bird is increasingly common from Chuichupa southward, and was especially an everyday sight during the trip, in 1904, to the mountains west of Parral. And, being so common, it was a matter of considerable surprise to notice that Mr. Thayer speaks of his specimens as "among the first, if not the first eggs of this bird

that have been found." Had the literature bearing on this bird and its eggs been accessible to the present writer on his return from his first trip in 1903, he doubtless would have learned of the rarity of these eggs, and would have been at greater pains on the second trip to get full data concerning eggs, nesting, etc. If the statement relative to the rarity of these eggs be correct, the writer's regret is the more keen, for the mountains west of Parral are alive with these parrots, and he is sure he could easily have arranged for the collection of numerous eggs and parent birds. This regret is tempered only by the pleasure afforded by the abundant opportunity the writer had to study these parrots.

In the higher mountains west of Parral, a region varying in altitude from 4000 to 10,000 feet, the Thick-billed Parrot is far more common than northward in the country west of Cases Grandes; in fact it is the characteristic bird of these high places, as much so as is the Magpie part of the local color of our Western Plains.

It was a great surprise to see how different is a wild parrot from a tame one; one must need get an idea from the latter that a parrot is a slow, lumbering climber, able to use its wings perhaps, yet little given to prolonged and vigorous flight. On the contrary, this Thick-billed Parrot flew across deep barrancas, from mountain to mountain, as swift and strong on wing as a duck, going often in large flocks, which were noticeably divided in pairs, each couple flying one above another as closely as beating wings allowed. Its loud squawk resounded overhead, across the barrancas, and in the pines all day long, from dawn till dusk; and many and many a time a flock could be heard long before it was in sight. The birds were not at all shy, as one could walk up under a tree and watch a pair climbing in it without disturbing them in the least. Here they seemed natural, at least to one whose previous knowledge of a parrot came via the cage bird, for they climbed about precisely as does the domesticated species, using bill and feet in the familiar way; on the wing the birds seemed anything but parrots. In whatever section we saw them, these parrots were most abundant in the pines. They frequented the tops of dead pines, and were, a good part of the time, going in and out of abandoned woodpecker nests, nests which we took to be those of the Imperial Woodpecker (*Campophilus imperialis*), for this splendid woodpecker is relatively com-

mon in the same neighborhood, and is the only woodpecker which excavates such a large hole. After watching the parrots a few days we were convinced that there must be young in every hole, judging by the seeming anxiety of the birds when about these holes, and their frequent visits to them. Having no climbers, we had to chop down the first nesting tree we found; it stood near our camp, at an altitude of about 9500 feet (aneroid reading of 21.95 inches); it took nearly all day to chop and burn through the trunk, as this standing dead timber becomes exceedingly hard on drying. When this tall tree fell its upper part broke into several pieces, and we were greatly disappointed to find that the fall had killed the two young birds which we found at the bottom of one of the old woodpecker nests. These young birds were only partly fledged, in fact quite immature for so late a date (Oct. 5); this might indicate that the eggs are laid late, unless the period of incubation be long, or the development of the young be unusually slow. The last flock seen in the fall of 1903 was noted about ten miles east of Chuichupa on the morning of November 15; it was a cold day, and ice had formed on the near by creek the preceding night, all going to show that this parrot can endure considerable cold. The writer collected some skins of this species, and could have collected many more had it seemed desirable. The local Mexican name for this bird is *Guacamayo*, *i. e.*, the Spanish for parrot, and the Mexicans thereabout do not mention any other variety as coming to their notice. These birds are handsome, big creatures, and were a source of endless interest and amusement to us all.

We were mistaken in assuming that every tree with woodpecker holes visited by the parrots contained young; we located another promising tree which had several holes to which a pair of parrots made frequent visits. While cutting down this tree the pair of parrots became very much excited, and betrayed every mark of anxious parents. After a half day's work this tree was safely felled, but we found absolutely nothing in any of the old holes.

The various places mentioned in Mr. Thayer's notes are amongst the Mormon colonies spoken of above; they are only about 100 miles southwest of El Paso, Cases Grandes, on the Sierra Madra & Pacific Railroad, being the railway point for these colonies. At Cases Grandes an outfit can be gathered, and, too, it is a suitable

place to use as a base of supplies. The adjacent territory wherein are found the parrots is well up on the eastern slope of the Sierra Madras, about 40 miles from Cases Grandes, and varies in altitude from 7000 to 9000 feet; is rough, cut up by a good many deep ravines (but not true barrancas), and in these high levels the surface is sparsely covered by a growth of fine tall pines. It is a charming country to camp in, is easily travelled by horses, and guides and camp help can be secured amongst the Mormons, who are not adverse to earning good American gold. In addition, this country presents, it seems to the writer, a most interesting field and opportunity for an enthusiastic ornithologist; it impresses the writer that this region might give rich returns in migration data in the fall, and would surely supply the collector and observer additional rewards in the shape of local and southern Mexican species. The nights are cool after the middle of September, even at this low latitude; the days warm, but not hot, and withal the combination is a most unusual one. Our party in 1903 had no tent, everyone sleeping out under the trees. There was plenty of natural feed for the saddle horses and pack animals, though water was somewhat scarce, and there was cold enough most of the time to take the edge off the vigor of the rattlesnakes, fleas, and tarantulas, thus obviating these annoyances, which have to be reckoned with in the earlier months, especially further south.

Unless the writer's experience was exceptional, a trip of three or four weeks to the country west of Cases Grandes would be a comparatively inexpensive one. Three or four months, from September on, would give one a most enjoyable experience, valuable specimens and data, and, aside from possible rains in September, would be entirely comfortable and safe.

CHANGE OF LOCATION OF A CROW ROOST.

BY CHRESWELL J. HUNT.

THE lower Delaware Valley contains as many if not more winter Crows than any other one locality in the eastern States and one of the ornithological features of this section, during the winter, is the evening flight of the Crows toward their roosts.

One of the largest roosting sites is situated in Camden County, New Jersey, south of the town of Merchantville and some five miles from the city of Philadelphia. This is known to ornithologists as the Merchantville Roost, and here thousands of crows congregate to spend the winter nights.

On February 4, 1906, we spent the afternoon on Pensauken Creek and toward evening, when the crows began to gather preparatory to their evening flight, we decided to visit the Merchantville Roost.

Not knowing its exact location we waited until a well marked flight of crows began to pass over and then we followed them. After crossing numerous frozen marshy tracts, skirting others, climbing worm fences, and invading the privacy of many an orchard and cornfield — guided ever by the black line of homeward flying crows — we at last arrived at the roost. It was situated in a patch of oak and chestnut woodland of some eight or ten acres in extent lying a mile and a half or so south of Merchantville. From our station to the north of the woodland we could see three distinct flight lines coming in — the one we had followed from the northeast; one from the northwest; one from the west.

Some of the crows would pass on into the woods while others would alight upon the ground in the surrounding fields until parts of these fields were blackened and appeared, as Mr. Witmer Stone has described it, to have been burnt over.

As we sat on a fence beneath one of the flights the whirr made by the wings of the incoming birds was plainly heard. It resembled the rush of the surf along the beach. As night approached small flocks would rise from the fields and enter the woods until at last the ground was forsaken. All this while the birds kept up a con-

tinuous racket; possibly discussing the adventures the day had brought forth, at any rate they were advertising the whereabouts of their roosting spot to both friend and foe for a mile around.

As the sun sank in the west it seemed as if the whole top of the woods arose into the air — one immense flock of thousands and thousands of crows circled round and again settled in the trees.

Now they became more quiet, but it seemed that for some husky individuals sleep was out of the question, as a great many still persisted in making a noise.

When they had become comparatively quiet, we entered the woods. In the moonlight the leaf strewn ground, spotted all over with the white excrement, took on a ghostly aspect. Our progress was not very noiseless — we had to fight our way through the underbrush and pause now and then to untangle ourselves from a too friendly strand of green brier. As we startled the crows in the trees directly over us they would fly further into the woods.

When thus startled suddenly from their perches the birds seemed more or less bewildered and unable to see distinctly. We saw one crow which apparently flew against a limb, for after starting up he fell back and caught himself with an effort on a lower branch where he sat apparently dazed, and it was a minute or more before he was able again to take wing.

When well within the woods we shouted and the air became filled with a roar like thunder as the birds in the trees about us took wing and flew deeper into the woods. Then we left them but when well on our way to Merchantville we could still hear a few discordant 'caws' — possibly blessings called down on us for having disturbed their slumbers.

We described this homeward coming of the crows to a friend — how they came and came, thousands and thousands of them; how the ground was black with crows, etc., and he became greatly interested and wanted to see it himself; so we agreed to take him to the roost. It was on the evening of March 4 that we made the pilgrimage, and took him over the route followed by us a month before. When we reached the woodland there was not a crow to be seen. On the way we saw flight lines, which fact had somewhat puzzled me; but here in the woods, where a month before had been thousands, there was not a crow to be seen or heard. Even the

report of a revolver failed to dislodge any. Our friend was disgusted; I believe he thought we were playing some practical joke on him. But where were the crows? Had they taken up domestic cares already, and was the roost forsaken for the season? Only the previous week, February 25, I had seen a big flight toward the roost. It did not seem likely that they would break up the roost so suddenly.

March 11 was spent on Pensauken Creek. Toward evening, as we were walking to our homeward bound trolley, I noticed a flight of crows passing over, flying high, but apparently in the direction of the roost. I proposed that we should go over to it and see if the crows were not there, but my friend — he who had been disappointed the week before — did not care to accompany me, so we said good night and I set out alone.

When I neared the woodland where the roost had been situated I noticed that a flight of crows was passing directly over it and going to the northwest; so I changed my course and followed them. They led me through muddy cornfields, past a little stream where the first Killdeer of the season greeted me with their cheery call; past a clump of woods where a large owl left his perch with noiseless wing and sought a darker retreat among the trees, and on to a patch of woodland a little less than a mile northwest of the old roost.

Two flight lines were coming in and a great many crows were already in the woods. Here was the solution of the problem. The crows had changed their roosting place, for what reason I am unable to say. Possibly some of the nearby farmers — always at war with them — had disturbed them.

In reaching this new roost the direction of flight had changed, so that we missed them entirely the week before.

The near approach of the nesting season had no doubt lessened their numbers, but here the main body had assembled, and the old roosting place had been entirely deserted. One would think that a few, from habit, would stick to the old roost but they seemed to have, with one accord, sought new sleeping quarters.

NESTING HABITS OF THE GREEN HERON.

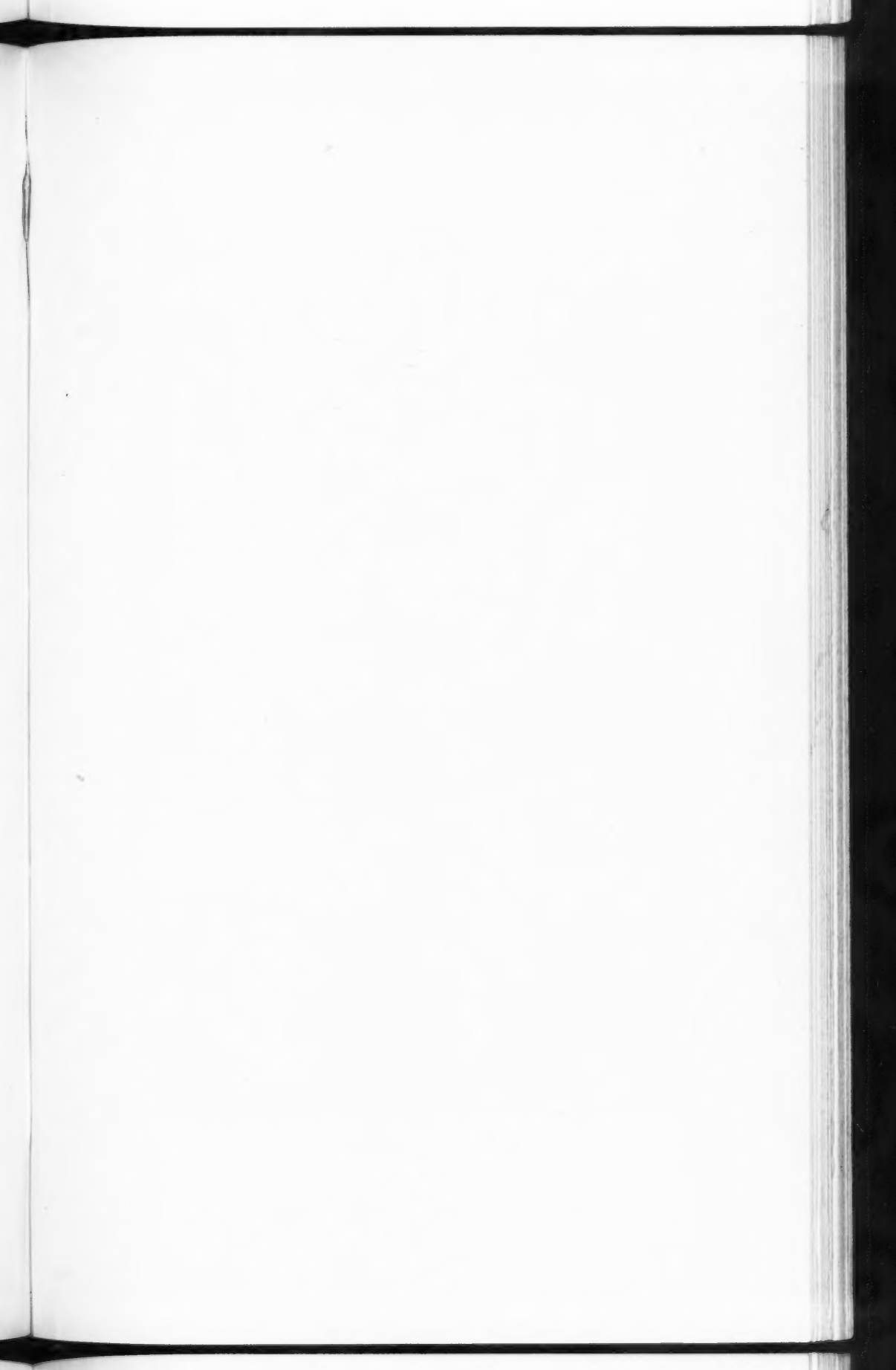
BY IRENE G. WHEELOCK.

Plate VIII.

WHILE by no means a rare bird in southern Wisconsin, *Butorides virescens* is yet sufficiently uncommon to arouse some interest in his domestic affairs. Studied from the standpoint of an economist he merits the hearty support of every bird lover and snake hater on account of the untiring zeal with which he provides young snakes for the nourishing of his brood. Possibly he is a poorer fisherman than most of the heron family, for fish forms a comparatively small part of his diet. Snails, tadpoles, small frogs, snakes and crayfish are his chief food if one may judge by that given to the young. In studying the habits of most species, we have found it necessary to use a miniature stomach pump, in order to ascertain what food had been given to the nestlings. Heron infants, on the contrary, obligingly disgorge the contents of their crops whenever an intruder approaches the nest, thereby rendering a postprandial menu an easy matter.

Of the several broods of this species under observation during June and July, 1906, four were in evergreen trees, one in an apple tree, a part of a large orchard at some distance from water, and one in a small cottonwood at the edge of a swamp. The photographs illustrating this article were taken at the different nests as was most convenient for all concerned.

On June 16 we discovered the nests in the pines. At that date every nest contained young apparently about two weeks old, one brood numbering four, one five, and the others not being investigated closely. The nests were all at about the same height, twenty feet from the ground, about one half the diameter of a crow's nest, but much less bulky and less carefully built. For, smile as you will, *Corvus americanus* is a careful builder. Every nest of his that I have investigated has been strongly put together and lined with a felted mat of cow hair. But herons are inured to hardships from their birth, it seems, for no lining of any sort was found in any of the nests, the young reposing on the coarse twigs in the midst of indescribable uncleanness.





GREEN HERONS ONE WEEK OLD.

The same group of pines containing the heron nests was the home of numbers of Bronzed Grackles. In as much as the latter arrive from the south nearly two months earlier and nest two weeks earlier than the former, we wondered that, with all the forest from which to choose a nesting site, the herons should willingly come into such close proximity to disagreeable neighbors. The grackles were quarrelsome, thieving, noisy, and the only possible advantage the herons could hope to derive from them would be the loud alarm always given by them at the approach of danger. A 'lookout' on the top of the tallest pine scanned the country far and wide, and never once did we succeed in sneaking up unseen.

While we were still a hundred feet from the heronry, warned possibly by the outcry of this sentinel, the adult herons with one accord deserted, taking up their watch in distant trees, and only one of them all seeming to show any special interest in our proceedings. This one, whether male or female I know not, flew over the nest tree occasionally while we were photographing the young, evidently wishing to feed them. That they were not suffering from neglect in that line was evidenced by the "unswallowing" they did, one of them disgorging a fat crayfish four inches long and seemingly much too large a morsel for the size of the bird's throat. Afterward, when I viewed the *æ*sophagus of a young heron, dissected and 'preserved,' I wondered still more how so much breakfast ever passed down so small a tube. The jointed lower mandible and pouch like throat could explain the attempt to swallow it, but the tiny *æ*sophagus, scarcely one fourth of an inch in diameter, would seem to effectually bar its further progress. The four young herons as we approached stretched up to their tallest extent, which was about twelve inches, and 'stiffened,' swaying slightly from side to side with excitement like a lot of snakes. We thought catching a photo in this pose would be an easy task but an attempt to get nearer them resulted in a general exodus. Far out on the branches they scrambled, out of reach and as safe as though a mile away so far as my ability to follow was concerned. But a photo we must have, so we went on to the next nest. Here the birds were a day or so younger and the nest was in a better position for photographing.

During the week that followed a severe storm swept that district, bringing disaster to the heron colony. Young herons hung lifeless in every nest tree, usually head downward, having caught a twig in their strong feet and held on even after death overtook them. In one case the head and bill were hooked over the edge of the nest as if the young bird had been pushed out and had clung desperately to the last. In this same nest we found a young bird dead apparently from starvation. The storm accounted for a part of the tragedy but the fact of desertion on the part of both parents of this brood was too clearly proven. Curiously enough, the grackle nestlings, probably all second broods, were unharmed. Contrary to Mr. Finley's experience with the Night Herons, we found several young Green Herons alive and thriving under the trees where they evidently must have been fed by the adults. They squatted motionless at our approach, allowing us to catch them easily.

The heron family in the apple tree was probably a second brood as it was hatched June 27, a late date for a first brood. There were but two eggs and no evidence of there ever having been more. As soon as the little ones were fairly out of the shells and before the down was dry on their heads we had taken several pictures of them. One of these revealed a remarkable heron trait, for the brand new baby, who had *never been fed*, and who had scarcely opened his eyes upon this queer world, yet attempted to protest against our meddling by the characteristic heron method of defence. In his case the action was merely a nervous 'gagging' and would seem to indicate that this act is probably involuntary rather than intentional on the part of all herons.

In watching the various Green Heron broods develop we noted three points radically different from the habits of Passeres. First, they are fed only early in the morning and late in the afternoon, the wait between mouthfuls being also much longer. From four to six A. M. and five to seven P. M. are the periods of greatest activity. These are the only hours when the young made any clamor for food although the return of the parent at any hour was heralded by some signs of excitement on the part of the nestlings before we could perceive it even with close watching. One record, when young were seven days old, shows feedings at 4.06; 4.30; 4.58; 5.02; 5.43;

6.10; 7.04; all A. M. Another, 4.13; 4.22; 4.35; 4.50; 5.13; 5.40; 6.15; all A. M. The P. M. records were about the same, averaging about six feedings in the two hours. These were given by regurgitation but were *not predigested*. Crayfish, tiny fish, snails and slugs predominated in the morning if cloudy — frogs, tadpoles, larvæ of various insects and dragon flies, if sunny. This for the morning meal. The afternoon, if sunny, yielded small snakes, grasshoppers, crickets, fish and tadpoles; if cloudy, frogs and crayfish and worms seemed to be the easiest catch. We could not discover that snakes were ever brought on rainy, or crayfish on bright days. I believe some one has given this heron credit for digging into crayfish holes in order to secure this choice tidbit. Without doubt this may be true but he is such a wary hunter that never were we able to watch him catch his prey except when we could find him fishing in a quiet nook and steal upon him by boat.

The second point of difference is that food seemed to be just as abundant and brought just as frequently to the heron broods on wet as on clear days. This is not the case with the Passeres. I have frequently known young Robins, Thrushes, Jays, Catbirds, etc., to remain more than two hours without food on a rainy morning, and Mr. Ned Dearborn has suggested that this disproportionate feeding on dark and bright days may account for their irregular gain in weight.

This brings up the third point, which is that young herons increase in weight in a regular ratio, not dependent upon the weather conditions, but develop less rapidly than the young Passeres. Mr. John Ferry, by a carefully kept record of the increase in weight of young birds, proves that Yellow Warblers gain four times their weight, Thrashers five and one half times, Wood Thrushes five times, Robins eight times in eight days, but that while on some days they double their weight, on others there will be scarcely any gain, making the increase per diem an uncertain quantity. But the young Green Herons gained one half an ounce in weight every day for six days, weighing three fourths of an ounce at the beginning and three and three fourths ounces on the seventh day. We used postal scales, and Mr. Ferry's ingenious idea of swaddling the infants in order to make them stay on facilitated matters greatly in weighing the young herons. After the seventh day it was necessary to shake them out of the tree and catch them as they fell in order to get them

at all and, as this seemed more or less cruel as well as troublesome, we gave up trying to record their weight.

It was also interesting to note that, when first hatched, the herons stretched up to a height of three and one fourth inches and when seven days old eleven inches. The legs and feet, at first pinkish, were, at seven days old, a yellowish green, and at fourteen days had become a pale bluish green. The legs also had lengthened from one inch to four inches. The same change in color occurred in the skin about the end of the bill and around the eyes, it gradually assuming a brilliant pale green in place of the pinkish yellow of the newly hatched chick. The bill, one third of an inch long and of a soft yellow, at hatching, at fourteen days was nearly two inches in length and beautifully streaked longitudinally with brilliant pale green. As is characteristic in all young herons, the lower mandible was longer than the upper.

Another most remarkable change had taken place in feather development, the close white down that had enveloped them like swansdown having separated with the stretching of the skin into long waving hair like filaments, among which the feather quills protruded like spines on a hedgehog. Although bill, neck and legs were remarkably strong there seemed to be no power in the wing muscles as yet and the wings hung down at the sides in a loose-jointed fashion most distressing to the photographer.

Although always described as uttering a 'squawk' when disturbed the adult herons were silent on every occasion when we were about the heronry, leaving and returning to their nests without any audible protest against our intrusion.

We at first supposed that this species, being solitary, would not indulge in the 'dances' so characteristic of herons in general and were delightfully surprised just at nightfall in June to see one of these lone fishermen indulging in a 'hornpipe.' It was evidently for his own amusement, although possibly his mate may have been an unseen witness. Backward and forward, with queer little hops, he pranced first on one foot and then on the other. Although a less elaborate performance than similar ones I have watched by the Mademoiselle Herons, and particularly by the Black-crowned Night Herons, yet it was evidently prompted by the same exuberance of spirit, like a small boy who must turn a somersault or burst. The effect is as ludicrous as though a long-legged, dignified D. D. were to pause in his learned discourse and execute a double shuffle.

BIRDS OF TORONTO, ONTARIO.

BY JAMES H. FLEMING.

Part I, Water Birds.

TORONTO, the capital city of Ontario, is situated on the north shore of Lake Ontario, about forty miles east of the western end of the lake, in Lat. $43^{\circ} 39' 35''$ N., Long. $79^{\circ} 23' 39''$ W. The lake is at this point about 240 feet (Harbor Commissioner's gauge, zero, 244.8) above sea level.

The topography of the city and the country surrounding it is peculiar and a review will aid in understanding the ornithological conditions. The city for a greater part of its width is protected from the lake by a sandbar and island, once continuous. The sandbar runs west from near the eastern city limits for nearly three miles till it is divided by the Eastern Channel, and sending a spur north encloses what is known as Ashbridge's Bay. This is really a marshy lagoon of considerable size, and though filled in, in places, still affords food and shelter for many species of birds. Into this bay originally drained some eleven creeks, and at its western end the River Don, which now is confined to an artificial channel and flows into Toronto Bay somewhat further north than where the original outlet of Ashbridge's Bay was. The narrow sandbar that divides this bay from the lake is an important feature in the ornithological history of Toronto. It has been divided by an artificial cut giving access to the lake; the western portion is known as Fisherman's Island, and from here as well as the bay itself have come many unusual records. The building up of this portion of the bar with houses has seriously affected the freedom of several species of waders, which no longer call here on migrations.

From the Eastern Channel, Toronto Island runs in a westerly direction for nearly three miles, till about two miles south of the city, then turns north towards the city, giving the island a more or less triangular shape, and ending in the Western Sandbar, which is divided from the city by the Western Channel, the original outlet of Toronto Bay, which is itself inclosed on the south and west by the island, and on the east by Ashbridge's Bay. The island, originally covered with pine, has been invaded by sand, and

for many years was very nearly treeless; it is deeply cut into from the bay side by many marshy lagoons and channels. Of late years a good deal of filling in has been done; many houses have been built along the lake front, and the planting of willows and other soft-wooded trees, particularly at Island Park, has given shelter and increased the food supply, inducing many birds to stop here on migrations that formerly passed over the city; warblers such as the Cape May, the Tennessee, and the Connecticut, that were regarded as accidental, have become regular migrants.

Toronto Bay itself has suffered from the sewerage poured into it and several species of aquatic plants that afforded food for wild fowl have been killed out, but some ducks, such as the Long-tailed Duck or Cowheen, have found the conditions not unfavorable, and in winter whenever the ice allows, resort to the sewers in considerable numbers. These sewers now represent some six or seven small streams that formerly emptied into the bay from the north.

From the Western Channel the city runs along the open lake for three miles to the western city limits, following the inward sweep of the lake, which forms what is known as Humber Bay, the Humber River flowing into its western end about three quarters of a mile further on. Westward along the lake, Mimico Creek, the Etobicoke River, and, west again, the Credit River enters the lake, at a point thirteen miles from the center of the city.

Returning again to the city, the land rises gradually from the water front for some two and a half miles, and at North Toronto is 160 feet above the lake. From here an ancient lake margin rises abruptly some 70 feet to a plateau which sweeps across the back of the city and is broken only by the valley of the Don on the east, and the Humber on the west, and a few small ravines; a good deal of wood remains along this rise. This ancient water margin is one of a number (said to be thirteen) that exist between here and Lake Simcoe, some 60 miles further north; the highest point, 26 miles north of the city, near King, is 780 feet above Lake Ontario; it then declines till at Allendale on Lake Simcoe it is only 493 feet.

The shores of Lake Ontario about Toronto are low except on the east, at Scarboro (nine miles from the center of the city), where the land rises to 324 feet above the lake, and forms precipitous cliffs along the shore for some distance. Highland Creek and the Rouge River flow into the lake east of this point.

Toronto had originally many small ravines, through which flowed the streams that emptied into the water front. Most of these ravines are now filled in; in the northeast part of the city, in what is known as Rosedale, ravines of considerable depth exist and cross the back of the city to the valley of the Don; to the west of the city the ravines are not so numerous, though there are several between the western city limits and the Humber. This river and the Don run for some distance through flats between high banks.

Originally the city was covered by dense forests, and is so described in the early surveys (the first survey was made in 1793). Much of this timber was pine and hardwood mixed, but there were tracts of solid pine. This pine has long disappeared, only a stick remaining here and there on the ridge behind the city. There is much second growth pine and hardwood, and in the ravines outside the city some of the original forest remains. There are many wild places still remaining where forest birds may find suitable breeding places. In the city the streets are very generally planted with shade trees; there are many trees about the houses, and in the parks and open places there is plenty of shelter and food for birds.

A list of the birds recorded from the north shore of Lake Ontario would include only five species not given here; of these the Whooping Crane¹ and Magpie² are accidental; the Prothonotary, Golden-winged, and Hooded Warblers will eventually be taken here. It has been thought better to confine the list to the most important migration point on the lake, and to a place that has been the most carefully worked.

Toronto lies directly in the path of a great migratory route equidistant from the Atlantic, the Mississippi, and James Bay. There is strong presumptive evidence that two lines of flight converge, if not cross, here, one passing west through the Great Lakes, the other north towards Hudson Bay.

In preparing this paper I have traced all the unusual records back to the original specimens, and in all cases, except where mentioned, I have compared local specimens of every species recorded. The migration dates given are based very largely on specimens, and in the case of the waders exclusively so; consequently many

¹ McIlwraith, *Birds of Ontario*, 1894, 116.

² *Auk*, XV, 1898, 274.

of the dates are well within the mark, and can no doubt be extended. I have not thought it wise to give the average date; the amount of material is not sufficient, and in any case unless the records are made continuously in one place the results are misleading. In giving the dates between which a species has been found here, I have used those that have occurred more than once, and those that stand alone have been given as earliest or latest as the case may be.

From a very early period in the city's history there has been a more or less active interest taken in natural history, which has resulted in two or three collections of birds coming down to us, whose history is well known, and which give a very good idea of the ornithological conditions between 1840 and 1850. Of these the collection made by the late Hon. G. W. Allen was the largest and contained about 145 species. To the influence of Dr. Wm. Brodie we owe the formation of a small society which published its reports in the 'Proceedings of the Canadian Institute' from 1889 to 1891, and afterwards printed four numbers of the 'Biological Journal of Ontario' in 1894; these reports I have used largely, also the collection made by the society at that time. Mr. J. Hughes Samuel has allowed me to use his collection and records; the latter are of great importance as they cover a number of years of continuous collecting at Toronto Island, and I have particularly used them to correct my warbler dates. Mr. John Maughan, Jr., has allowed me to examine his large collection of mounted birds, part of which is now in the Provincial Museum, and I have found much useful data, particularly among the larger birds. I have also examined many rare records in the collection of Mr. J. H. Ames; Mr. C. W. Nash has allowed me to quote a paper published in 'Forest and Stream' (Vol. 38, 1892, 77) on 'Shore Birds Near Toronto,' and I have based many wader records on specimens taken by him. There are many mounted birds in the possession of sportsmen in the city, which have also been examined. My own collection of Toronto birds is a considerable one, and this paper is largely based on it.

1. *Colymbus holboëllii*. HOLBØELL'S GREBE.—Spring and fall resident. A female taken April 12, 1896, is not in breeding plumage; full plumaged birds are rare. April 28–June 6 and August 22, 1905. Young birds are not uncommon in the Lake during October and probably earlier. Latest record, November 24, 1900.

2. **Colymbus auritus.** HORNED GREBE.—Common resident in spring and fall, March 14 to April 23 (probably to May); and from middle of September to end of November (October 27, 1896). Spring birds are in full plumage, or nearly so, when they arrive.

3. **Podilymbus podiceps.** PIED-BILLED GREBE.—Common resident in spring and fall, April 4 to end of May; September 7 to December 15. Mr. C. W. Nash took a male June 28, 1898; and it has been reported as breeding.

4. **Gavia imber.** LOON.—Regular migrant, April 16 to May 31 (abundant May 22, 1894); earliest fall record, September 7, 1895; a bird taken October 19, 1904, is young, and one taken November 4, 1899, is an adult in winter plumage. Loons probably remain on the lake till the end of November.

5. **Gavia lumme.** RED-THROATED LOON.—Regular migrant, not uncommon; adults in breeding plumage, April 28 to June 3; earliest record a male in winter plumage, March 14, 1899; in fall from October 6 to November 30. There are no winter records.

6. **Cephus grylle.** BLACK GUILLEMOT.—One record, a female taken December 19, 1895. It is possible that this bird is *C. mandtii*, as its beak is small, and the plumage very white. The specimen is in a sealed case and a closer examination is necessary.

7. **Uria lomvia.** BRÜNNICH'S MURRE.—In 1893 this species entered Lake Ontario in considerable numbers; the first appeared at Toronto November 29, and they increased in numbers through December, all eventually dying of starvation. For the next ten years the birds were noted annually in November and December, but in decreasing numbers, none surviving very long. The migration of this maritime species into the fresh waters of the Great Lakes was so remarkable and accompanied by so many unusual features that I have recorded elsewhere a fuller account.¹

8. **Alca torda.** RAZOR-BILLED AUK.—One specimen taken December 10, 1889, now in the Canadian Institute.² There is also a Hamilton record in the collection of Mr. John Maughan, Jr., taken December 9, 1893.

9. **Alle alle.** DOVEKIE.—One record, a female taken November 18, 1901,³ in collection of Mr. John Maughan, Jr.

10. **Stercorarius parasiticus.** PARASITIC JAEGER.—Of regular occurrence, rare; adults taken June 20, 1891, and October 20, 1894; both in the light phase of plumage, the latter not quite adult. I have examined six local specimens and as many more from other points on Lake Ontario and Lake Erie; the majority are immature in the dark phase, and only one, a Toronto bird, is in the light phase of plumage.

¹ 'The Unusual Migration of Brünnich's Murre in Eastern North America.' (Proceedings IV International Ornithological Congress, London, 1905).

² Proceedings Canadian Institute, 1890, 200.

³ Auk, XIX 1902, 94.

11. **Pagophila alba.** IVORY GULL.—One specimen taken by Mr. Wm. Loan on December 25 (1887 ?), and still in his possession. This is an immature bird heavily spotted with black. There is reason to believe that this gull is probably a regular visitor in winter to Lake Ontario.¹

12. **Rissa tridactyla.** KITTIWAKE.—Accidental migrant; several were taken in November, 1899,² and one on October 31 of the same year; of these, all I examined were immature. Specimens recorded in 1889³ I never saw and are possibly incorrect.

13. **Larus glaucus.** GLAUCOUS GULL.—Regular winter resident, not common, from December 3 to March 25. Mr. Maughan has one taken May 4, 1893, a male in the white phase of the immature. All that I have examined are in the mottled or white plumages, none being adult.

14. **Larus leucopterus.** ICELAND GULL.—One record, an immature female taken December 12, 1898, in the collection of Mr. J. H. Ames.⁴

15. **Larus marinus.** GREAT BLACK-BACKED GULL.—Regular winter resident, not uncommon, November 24 to February 16; earliest record September 18, 1896; latest May 26, 1897. All the birds I have examined or seen alive were mature.

16. **Larus argentatus.** HERRING GULL.—Common resident, abundant in spring and fall; does not breed here, but keeps up a regular communication with the lakes north of here, except in winter.

17. **Larus delawarensis.** RING-BILLED GULL.—Regular migrant, March 25 to April 25; and from September 25 to November 16, and probably later; earliest record August 20, 1890. Said to be a winter resident on the lake.

18. **Larus atricilla.** LAUGHING GULL.—Two records, one a mature male taken May 23, 1890, in Mr. Loan's collection⁵; the other a female taken June 1, 1898, in my collection. This bird lacks the black hood.

19. **Larus philadelphia.** BONAPARTE'S GULL.—Common spring and fall resident, April 19 to the middle of May, and from September 20 to November 6; earliest fall record August 4, 1890; latest, December 15, 1897.

20. **Sterna caspia.** CASPIAN TERN.—Regular spring migrant, April 29 to May 28. Sometimes occurs in flocks of some size (up to fifty). I have no fall records though this tern may occur in October; there are no immature birds in local collections.

21. **Sterna forsteri.** FORSTER'S TERN.—Possibly a regular migrant; I have examined only two birds, one a male, May 22, 1894, the other taken October 19, 1899.

22. **Sterna hirundo.** COMMON TERN.—Common migrant, May 25

¹ McIlwraith, *Birds of Ontario*, 1894, 42.

² Auk, XVII, 1900, 177.

³ Proceedings Canadian Institute, 1890, 190.

⁴ Auk, XVIII, 1901, 106.

⁵ Proceedings Canadian Institute, 1890-91, 41.

to June 3 (probably through May); returning late in August, and remaining through the greater part of September; a small flock are said to have been in the vicinity of Humber Bay all through the summer of 1905.

23. *Hydrochelidon nigra surinamensis*. BLACK TERN.—Regular migrant, May 22 to June 16, and from July 27 to September 5 (probably all through May and September). A pair seen May 31, 1906, were apparently breeding.

24. *Æstrelata hasitata*. BLACK-CAPPED PETREL.—I have in my collection two specimens, one a male picked up dead on Toronto Island by Mr. George Pierce, October 30, 1894¹; the other taken seventeen miles west on the lake shore by the late Mr. H. J. Baker, at about the same time, but the date is uncertain. The first bird was in very bad condition and must have been dead some days.

The first bird is much grayer on the back and head than the second; the ash-gray edging of the feathers is very pronounced on the back, while in the second the edging is browner and scarcely visible, the whole back being dark brown instead of gray as in the first. In the second bird the crown is brown, almost black, shading to grayish brown on the back of the neck, which is not divided by a white band; the cheeks and ear coverts are like the crown; the feathers of the forehead are sooty brown edged with white. In the first the tarsi and toes are as described, but in the second they differ; the exposed portion of the tibia to just above the heel joint is yellow (in the dried skin), the joint itself all around, and the back of the tarsus brownish black, the front yellow, the toes and webs yellow to the first joint, the rest black.

24. *Sula bassana*. GANNET.—A young bird taken in 1861 at Oshawa, 34 miles east of Toronto, is in the museum of Toronto University.²

25. *Phalacrocorax carbo*. CORMORANT.—Accidental; one record, a male taken November 21, 1896³. This bird was in an extremely exhausted condition when found, and is the only one I have seen from anywhere on the Great Lakes.

26. *Phalacrocorax dilophus*. DOUBLE-CRESTED CORMORANT.—Rare migrant; spring records are unusual (June 4, 1899); the majority of birds examined are young, August 30 to November 1.

27. *Merganser americanus*. AMERICAN MERGANSER.—Regular winter resident; the first flight occurs in September, but the bird is usually resident from early in November to the end of March; latest spring record, May 11, 1891.

28. *Merganser serrator*. RED-BREASTED MERGANSER.—Common migrant April 16 to May 7, and from October 15 to November 16; I have no winter records but Mr. C. W. Nash has found this species here from September 15 to April 17.

¹ Biological Review of Ontario, I, 1894, 11, 12.

² Canadian Journal, VII, 1862, 239.

³ Auk, XVII 1900, 176.

29. *Lophodytes cucullatus*. HOODED MERGANSER.—Common migrant, March 29 to the end of April; in the fall the first flight occurs in August (August 15, 1897), and from October 26 to November 9 (probably to the end of November).

30. *Anas boschas*. MALLARD.—Rare migrant; I have records only for November, but my records are incomplete.

31. *Anas obscura*. BLACK DUCK.—Common migrant, March and April; the first return in August (rarely in July), plentiful in October and November; earliest record March 15, 1899, latest December 6, 1897.

This is the breeding form in southern Ontario north at least to the Muskoka Lakes; a female taken alive on her nest at Barnsdale, Lake Joseph, in May, 1905, belonged to this form, and it is no doubt the breeding form much further north.

32. *Anas obscura rubripes*. RED-LEGGED BLACK DUCK.—Common migrant. The dates given for the Black Duck include this rather doubtful form, which remains later and consequently more are taken in the fall than of the other.

33. *Chaulelasmus streperus*. GADWALL.—Rare migrant; a male in Mr. Maughan's collection taken November 2, 1901.

34. *Mareca americana*. AMERICAN WIDGEON.—Regular migrant; not common; the only dates I have are April 12 and October 27.

35. *Nettion carolinensis*. GREEN-WINGED TEAL.—Regular migrant, March 28 to probably May 1, returning early in September; latest record November 24, 1897.

36. *Querquedula discors*. BLUE-WINGED TEAL.—Regular migrant, April 2 to May 15 (May 31, 1906) and from July 28 to October 5. Not as common as it was; said to have formerly bred.

37. *Spatula clypeata*. SHOVELLER.—Rare migrant; spring records are unusual; all the fall records are between September 1 and 27.

38. *Dafila acuta*. PINTAIL.—Regular migrant, not very common. April 6 is my only spring record; in the fall, October 20 to December 6.

39. *Aix sponsa*. WOOD DUCK.—Regular migrant; April 1 to May 10; in the fall from late in August to October 27.

40. *Aythya americana*. REDHEAD.—Common migrant, and an irregular winter resident; a flock remained during the winter of 1901-02, leaving on March 15. A small flock of non-breeding birds remained through the summer of 1906, but they usually leave before April 16.

This duck decreased till about 1890 when no birds were seen; the increase began soon afterwards and they rapidly regained their old numbers.

41. *Aythya vallisneria*. CANVAS-BACK.—Rare winter resident. A small flock was here in the winter of 1900-01; a male was taken on February 23, 1901, and a flock was reported on November 21; another male was taken on March 31, 1905.

Canvas-backs were practically unknown here for many years, due no doubt to the general decrease that took place soon after that of the Red-heads in eastern North America; the increase has resulted in a wide

extension of range, and recently Lake Ontario has been visited regularly by small flocks. Lake Erie seems to be still the center of abundance on the Great Lakes.

42. *Aythya marila*. SCAUP DUCK.— Common migrant and regular winter resident, from October 18 to March 4 (April 16, 1906). A small flock of non-breeding birds remained during the summer of 1906.

43. *Aythya affinis*. LESSER SCAUP DUCK.— Common migrant; does not winter here; arrives in March, remaining till May (May 22, 1894); earliest fall record July 21, 1890, latest October 29, 1895.

44. *Aythya collaris*. RING-NECK DUCK.— Rare migrant, April 1 to May 15.

45. *Clangula clangula americana*. AMERICAN GOLDEN-EYE.— Common migrant, and a regular winter resident, November 23 to April 27; Mr. Nash gives May 6 as latest date.

46. *Clangula islandica*. BARROW'S GOLDEN-EYE.— One record, a male, taken April 18, 1885, recorded by Mr. Ernest Seton¹; this specimen was not preserved.

47. *Charitonetta albeola*. BUFFLE-HEAD.— Common migrant, April 20 to May 1; earliest February 27, 1894; latest November 13, 1900.

48. *Harelda hyemalis*. OLD-SQUAW.— An abundant winter resident, November 15 to May 12 (latest June 2, 1899). Whenever the western channel is free of ice, flocks of many hundreds of Cowheen, as they are called here, assemble to feed on the sewerage that flows into Toronto Bay at that point, and become very tame, allowing a close study of their habits; many die of starvation during the winter. In 1894 birds taken on May 2 were in full winter plumage, and by May 12 some were in full summer plumage and others had only partially changed, but as a rule they leave before changing.

49. *Histrionicus histrionicus*. HARLEQUIN DUCK.— Migrant, probably accidental. A female recorded by Mr. Ernest Seton,² and a male (no date), are in the collection of Mr. Maughan; a male (no date), and a female taken October 20, 1894,³ are in my collection; both females are adults and the males are in moulting plumage; all four are, I think, fall birds.

50. *Somateria spectabilis*. KING EIDER.— Not uncommon in November and December; a few remain through the winter (February 4, 1889, Hamilton, Ont.). Birds in full plumage are rare; a male taken on November 18, 1895,⁴ by Mr. Nash, now in the collection of Mr. J. H. Ames, is fully adult. Males in winter plumage and females in the full red plumage are rare, the majority being young. The males predominate. The usual dates are November 6 to December 6.

51. *Oidemia americana*. AMERICAN SCOTER.— Regular fall migrant, in October and probably November, never common; adult females are

¹ Auk, II, 1885, 337.

² Auk, II, 1885, 337.

³ Auk, XVII, 1900, 176.

⁴ Auk, XIII, 1896, 347.

rare, and no males in full plumage have been taken, nearly all the birds examined having been immature. Males in full plumage no doubt occur, as one was taken at Belmont Lake, near Havelock, Ont. (100 miles east of Toronto, October, 1900).

52. *Oidemia deglandi*. WHITE-WINGED SCOTER.—Regular migrant; common March 1 to May 11; in the fall through October and November; a few are said to winter; spring birds are nearly all in full plumage.

53. *Oidemia perspicillata*. SURF SCOTER.—Regular fall migrant, in October and November; the majority of the birds examined are immature, but there is a full plumaged male in Mr. Maughan's collection.

54. *Erismatura jamaicensis*. RUDDY DUCK.—Regular fall migrant; not common. Full plumaged birds are said to have been taken, but all examined are immature. They occur in October (October 16, 1895).

55. *Oen caerulescens*. BLUE GOOSE.—An adult taken on the lake shore, seventeen miles west of Toronto, is in my collection; another probably taken here is in the collection at Trinity University; both birds are adult. This goose has been taken at Ottawa, London, and Gravenhurst in Ontario.

56. *Branta canadensis*. CANADA GOOSE.—Regular migrant, March 10 to 30, returning October 16 to November 12; these dates can probably be extended. Earliest date February 24, 1906.

57. *Branta canadensis hutchinsii*. HUTCHINS'S GOOSE.—A female taken October 19, 1905, is in the collection of Mr. Maughan. The identification of this goose is frequently incorrect; a reputed local record was sent to me from England which proved to be a small Canada Goose; but Hutchins's Goose is of rare occurrence in Southern Ontario; one in my collection was taken at Port Rowan on Lake Erie, October 6, 1896.

58. *Branta bernicla glaucogastra*. WHITE-BELLIED BRANT.—Two records, a male taken November 12, 1899, and a female taken December 2, 1895; there are no specimens in the old collections.

59. *Olor columbianus*. WHISTLING SWAN.—Rare; probably accidental. I have seen only two fresh birds, one of which is now in the collection of Mr. C. K. Rogers; there are two in the collection at Trinity University that were probably taken here. It seems likely that at one time this swan was of regular occurrence here.

60. *Olor buccinator*. TRUMPETER SWAN.—There are no recent records, but Prof. Hincks described in 1864 a new swan *Cygnus passmori*, taken here, which was really a young Trumpeter; and between 1863 and 1866 he was able to get six local birds to examine.¹ There are two specimens in the collection at Trinity University that were no doubt taken here.

61. *Botaurus lentiginosus*. AMERICAN BITTERN.—Summer resident, April 11 to Nov. 4; abundant in spring and fall; breeds (May 31, 1906).

¹ Proc. Linnæan Society of London, Zoölogy, VIII, 1864, 1-7; and IX, 1868, 298-300.

62. ***Ardetta exilis***. LEAST BITTERN.—Common summer resident from early in May to the middle of September; latest record, November 28, 1894; breeds (June 28, 1894).

63. ***Ardetta neoxena***. CORY'S LEAST BITTERN.—Sixteen of this interesting bittern have been taken at Toronto (about two-thirds of the known specimens), between May 18, 1890, and September 8, 1899. These dates are also the earliest and latest. The young have been taken from August 3 to 17. All the birds have been taken in a comparatively small extent of marsh in Ashbridge's Bay, and those who have taken them agree that Cory's Bittern is much more easily approached than the Least Bittern, though more difficult to distinguish in the marsh owing to its dark color. All, or nearly all, exhibit albinism in a slight degree, and in the case of an adult male taken August 7, 1899, melanism is also present. A nest was taken June 15, 1898.¹ For a list of Toronto records see Auk, XIII, 1896, 11, and XIX, 1902, 77.

64. ***Ardea herodias***. GREAT BLUE HERON.—Common migrant, March 19 to April 7, and probably later; a young bird was taken July 24, 1891, but they usually commence to return a week later (August 1, 1897). They are common through August, and a few remain till late in November (November 17, 1901). Earliest record February 1, 1891 (Mr. J. H. Ames).

65. ***Herodias egretta***. AMERICAN EGRET.—A specimen in my collection taken at Port Union (17 miles east of Toronto) May 24, 1895; this is the only definite record, but white herons have been reported from various points on the lake that seem to be of this species. Dr. Wm. Brodie says a pair bred regularly many years ago (about 1870) at Port Union and several were shot.

66. ***Butorides virescens***. GREEN HERON.—Regular migrant, not common, April 30 to May 24; they reappear in June (June 25, 1904), and from August 7 to September 17.

67. ***Nycticorax nycticorax nævius***. BLACK-CROWNED NIGHT HERON.—Regular migrant, rather rare in spring, May 24 to June 14; young birds August 8 to 27. In 1900 Mr. J. Hughes Samuel recorded Night Herons from August 1 to October 12.

68. ***Nyctanassa violacea***. YELLOW-CROWNED NIGHT HERON.—A young bird taken August 15, 1898, by Mr. John Maughan, is in the Provincial Museum.²

68. ***Grus mexicana***. SANDHILL CRANE.—A pair taken many years ago at Toronto are in the collection of Mr. Maughan.

69. ***Rallus elegans***. KING RAIL.—Migrant, probably accidental; one was taken in September, 1903, and there are two other local records.

70. ***Rallus virginianus***. VIRGINIA RAIL.—Summer resident; arrives late in April and is common in May; young birds from July 7 to August 27. A few remain till October. Breeds (July 6, 1891).

¹ Auk, XVIII, 106.

² Auk, XXIII, 1906, 220.

71. *Porzana carolina*. SORA RAIL.—Common summer resident, April 24 to September 21. Breeds (May 11 to June 31).

72. *Porzana noveboracensis*. YELLOW RAIL.—Regular fall migrant, rare; earliest August 5, 1896; usually from September 12 to October 15. There is but one spring record, a male taken by Mr. Nash, April 24, 1899.

73. *Ionornis martinica*. PURPLE GALLINULE.—One taken at the mouth of the Rouge River (16 miles east of Toronto), April 8, 1892.¹

74. *Gallinula galeata*. FLORIDA GALLINULE.—Common summer resident, abundant in migrations; arrives about the middle of April, departs towards the end of October. A young bird taken September 29, 1898; downy young, June 6, 1895; nest taken June 23, 1889.

75. *Fulica americana*. AMERICAN COOT.—Regular migrant, fairly common, April 11 to May 29; returns in September and October (September 29, 1899).

76. *Crymophilus fulicarius*. RED PHALAROPE.—Regular migrant in the fall, rare; all I have examined are young birds, September 12 to November 14, but in the museum of the Geological Survey at Ottawa there is a full plumaged bird said to have been taken here. This is probably the commoner of the three phalaropes, and is usually taken among duck decoys.

77. *Phalaropus lobatus*. NORTHERN PHALAROPE.—Regular migrant, rare; an adult male taken June 7, 1890, is in my collection, and I have seen an adult female taken here, but such records are exceedingly rare. Young birds occur regularly, September 22 to October 31.

78. *Steganopus tricolor*. WILSON'S PHALAROPE.—Rare migrant; adult female May 22, 1855; adult male June 2, 1890, and a young female August 15, 1890, are in my collection. Mr. J. H. Ames has a female taken May 25, 1890, and a young bird. A supposed hybrid belonging to Mr. T. Harmer of Tacoma, Wash., proved to be a young bird of this species. Besides these there are two or three more in local collections, all adults. There are indications that at one time this species was of much more regular occurrence than it is now.

79. *Recurvirostra americana*. AMERICAN AVOCET.—Accidental migrant, two records, one a bird in full plumage in the possession of Mr. Wm. Loan, the other an adult male in the gray plumage taken September 19, 1901.²

80. *Philohela minor*. AMERICAN WOODCOCK.—Regular migrant, not common; April 2 to 29, returning in July (July 10, 1891) and August (August 17, 1902), and from October 12 to November 5. Earliest record, March 25, 1893; latest, November 11, 1896. Woodcock may possibly breed here.

81. *Gallinago delicata*. WILSON'S SNIPE.—Regular migrant; fairly common in May, returning September 11 to October 27; earliest record, March 28, 1897; latest, November 24, 1894.

¹ Biological Review of Ontario, I, 1894, 10.

² Auk, XIX, 1902, 79.

82. **Macrorhamphus griseus.** DOWITCHER.—Regular migrant, not common, May 16 to 31; one taken August 1, 1894, is in full plumage; one taken August 24, 1891, and one September 15, 1889, are young birds.

83. **Macrorhamphus scolopaceus.** LONG-BILLED DOWITCHER.—Rare migrant; there is a specimen in Mr. Ernest Seton's collection, taken September 3, 1888; one without date in my collection, and a full plumaged bird from Hamilton (39 miles west), August 12, 1891.

84. **Micropalama himantopus.** STILT SANDPIPER.—Regular fall migrant, not common; adults in full plumage, July 18 to 28, and young August 9 to September 26; there are records of birds from June 25 to 30 but I have not seen these specimens.

85. **Tringa canutus.** KNOT.—Regular migrant, rather common in spring, May 25 to June 6; I can find no adult birds on the return flight; the young come from August 23 (earliest August 9, 1886) to the first week of September (Sept. 5, 1886, Hamilton, Ont.) and are not common.

86. **Arquatella maritima.** PURPLE SANDPIPER.—Regular fall migrant, rare, October 27 to December 7; two birds in my collection are apparently adults. This species is probably overlooked owing to the lateness of its migration.

87. **Actodromas maculata.** PECTORAL SANDPIPER.—Common fall migrant. Mr. Nash gives July 23, 1891, as the earliest record; usually from August 13 to 31; and September 26 to October 27, 1891.

88. **Actodromas fuscicollis.** WHITE-RUMPED SANDPIPER.—Regular migrant, not common, May 26 to June 14 (latest June 21, 1898); returning August 23 to September 24; and October 26 to November 2.

89. **Actodromas bairdii.** BAIRD'S SANDPIPER.—Regular fall migrant, not uncommon; all I have examined are young birds, August 12 to September 24. Mr. Nash gives July 28 to October 10.

90. **Actodromas minutilla.** LEAST SANDPIPER.—Abundant migrant, May 4 to 20; the adults return during the first half of July (July 4, 1891) and the young from August 10 to 24. Mr. Nash has records from June 28 to July 19, and to the middle of September.

91. **Pelidna alpina sakhalina.** RED-BACKED SANDPIPER.—Abundant migrant May 12 to June 2 (latest June 13); returning October 9 to 22, and through the first half of November. Adults are rare in fall.

92. **Erolia ferruginea.** CURLEW SANDPIPER.—A single specimen, taken by Mr. Wm. Loan about 1886¹; this bird was afterwards destroyed except the head which is now in my collection, and which belonged to a nearly adult bird.

93. **Ereunetes pusillus.** SEMIPALMATED SANDPIPER.—Regular migrant, common May 24 to June 2, returning in July (July 21, 1891); the young August 24 to September 10. Mr. Nash gives for 1891, from May 24 to June 13; July 21 to August 10, when first young were observed,

¹ McIlwraith, *Birds of Ontario*, 1886, 2; 1894, 145.

and on till middle of September. I can find nothing approaching *E. occidentalis*.

94. *Calidris arenaria*. SANDERLING.—Regular migrant, common May 21 to June 2; returning August 24 to 28; the young September 4 to 12.

95. *Limosa fedoa*. MARBLED GODWIT.—Rare migrant in spring, probably accidental; a female taken May 30, 1895, is in the Provincial Museum, and one taken June 7, 1890, is in my collection.

96. *Limosa hæmastica*. HUDSONIAN GODWIT.—Rare fall migrant; a young bird taken August 20, 1898, is the earliest record; two specimens taken September 25, 1894, are in winter plumage; two taken October 20, 1890, are adults in changing plumage. Mr. Wm. Loan has a specimen in full plumage, and Mr. J. Hughes Samuel saw one June 13, 1895.

97. *Totanus melanoleucus*. GREATER YELLOW-LEGS.—Regular migrant; common April 10 to May 13; earliest March 26, 1901, latest spring record June 9, 1894. Mr. Nash says "returning, first July 28 (1891), few seen till October 27, on which day I saw last; last year I noted a flock November 19."

98. *Totanus flavipes*. YELLOW-LEGS.—Regular migrant, common April 30 to May 17, the young August 7 to September 15. Mr. Nash says, "seldom in flocks; saw none this spring (1901); on return first appeared July 18 (adult female), but few were seen from that time until August 22, when they became common, and remained until October 6." Latest record, October 18, 1890.

99. *Helodromas solitarius*. SOLITARY SANDPIPER.—Regular migrant, local and not very common; I have only two spring records, March 16, 1902, and May 18, 1893; returning, adults July 10 to August 10, young August 13 to September 1. Mr. Nash gives September 16, 1891, as latest record.

100. *Symphemia semipalmata inornata*. WESTERN WILLET.—Rare migrant. I can find only five specimens in local collections; the only one with a date is a female in full plumage taken July 20, 1898, in the Provincial Museum; an adult in winter plumage is in my collection. A careful comparison of the local specimens proves them to belong to the western form.

101. *Pavoncella pugnax*. RUFF.—A male in full plumage but with the face feathered, was taken on Toronto Island in 1882, and is now in the museum of the Geological Survey at Ottawa. In 'Catalogue of Canadian Birds,' Macoun, p. 177, the date is given as 1875, but this is incorrect, and the female there recorded is a specimen of the Bartramian Sandpiper.

102. *Bartramia longicauda*. BARTRAMIAN SANDPIPER.—Said to have been an abundant migrant; now rare. In 1893 birds were taken from May 6 to June 7, and were said to have bred a few miles west of the

city; Mr. George Pierce took full grown young in July or August of that year. There are no recent records.

103. *Tryngites subruficollis*. BUFF-BREADED SANDPIPER.— Regular fall migrant, rare, September 1 to October 4.

104. *Actitis macularia*. SPOTTED SANDPIPER.— Common summer resident, April 23 to October 3; earliest nest May 14, latest June 16.

105. *Numenius hudsonicus*. HUDSONIAN CURLEW.— Regular migrant, not uncommon, May 27 to June 2; the old birds return early in July (July 4, 1904, July 17, 1906), and the young from September 1 to 15, but are very rare.

106. *Numenius borealis*. ESKIMO CURLEW.— There are two specimens, said to have been taken on Toronto Island in 1864, in the museum of the Geological Survey at Ottawa; the authority is Mr. S. Herring, who mounted the birds. The Eskimo Curlew can never have been more than accidental on Lake Ontario. I have carefully examined all the material available, and have so far found only two more records, one in the McIlwraith collection taken at Hamilton,¹ I think an adult; the other was taken at Wolf Island, near Kingston, Ont., October 10, 1873, and is marked "female." I think it is a young bird; it is now in the British Museum.

107. *Squatarola squatarola*. BLACK-BELLIED PLOVER.— Regular migrant, fairly common, May 22 to June 2; returning in July (July 23, 1890). Of two females taken in August, 1891, one, on the 28th, is adult, the other, on the 31st, is a young bird. Young birds taken at Hamilton from August 9 to September 5, are in my collection; Mr. Nash gives the latest dates as September 15, 1898, and October 17, 1895.

108. *Charadrius dominicus*. AMERICAN GOLDEN PLOVER.— Fall migrant, rare; said to have been formally abundant at irregular intervals. Mr. Wm. Loan describes a flight that occurred about 1887, when thousands of birds assembled on the eastern sandbar at night, and returned to the open fields at daybreak. I have no records between 1898 and 1905, when five young birds were taken on September 27. Old birds in changing plumage occur from August 25 to September 15, young from September 16 to 27; there are some records as late as November 9, but I have not seen these birds.

109. *Oxyechus vociferus*. KILLDEER.— Summer resident, not uncommon, April 6 to October 24; earliest March 25, 1891. Breeding records, June 3 and 18, full sets. Killdeer are very abundant and widely distributed during migrations.

110. *Aegialitis semipalmata*. SEMIPALMATED PLOVER.— Common migrant, May 12 to June 2 (latest June 6, 1895); Mr. Nash has records of adults July 5, 1890, and July 23, 1891; the young arrive in August (August 24 to 29). Latest records, September 10, 1892, and October 26, 1895.

111. *Aegialitis meloda*. PIPING PLOVER.— Regular migrant, not very common, May 16 to 24 (earliest May 1, 1891); and June 20 to 25.

Curiously enough all the old specimens in local collections are referable

¹ McIlwraith, *Birds of Ontario*, 1894, 160.

to *meloda*, and the last record is June 20, 1894; the first record of *circumcincta* is May 24, 1891, and all recent records belong to this form.

112. *Ægialitis nivosa*. SNOWY PLOVER.—Two records: one specimen taken by Mr. J. Foreman in May, 1880, was identified by Mr. Ernest Seton¹ and has since been destroyed; the other is in the collection of Mr. J. H. Ames, and was taken July 6, 1897.²

113. *Arenaria morinella*. RUDDY TURNSTONE.—Regular migrant, common in spring, May 18 to June 2; an adult taken June 16, 1895, and a flock of seven seen June 17, 1894; the young arrive in September (September 4, 1891).

HYPOTHETICAL LIST.

1. *Gavia arctica*. BLACK-THROATED LOON.—I recorded³ a specimen in error; it proves to be a very small Loon, in winter plumage. A pair are mentioned in Prof. Hincks's list of birds sent to Paris.⁴

2. *Uria troile*. MURRE.—A specimen recorded by me is an error.⁵ A careful examination of the printed records prove they are based on hearsay evidence, and as far as I know no specimens exist from any where on the Great Lakes.

3. *Stercorarius pomarinus*. POMARINE JAEGER.—I can find no specimens and no reliable printed records from anywhere on the Great Lakes; the records probably refer to *S. parasiticus*.

4. *Stercorarius longicaudus*. LONG-TAILED JAEGER.—This species no doubt occurs on Lake Ontario but I have not seen specimens. Mr. W. E. Saunders has recorded the taking of two at Rondeau, Ont., on Lake Erie,⁶ October 2, 1900.

5. *Larus franklinii*. FRANKLIN'S GULL.—This is given in Prof. Hincks's list;⁶ recent records no doubt refer to *L. atricilla*.

6. *Xema sabinii*. SABINE GULL.—This is given in Prof. Hincks's list but there is nothing known about the specimen sent to Paris.

7. *Sterna paradisæa*. ARCTIC TERN.—This is given in Prof. Hinck's list; possibly it refers to *S. forsteri*.

8. *Sterna antillarum*. LEAST TERN.—The Ontario records all

¹ Auk, II, 1885. 335.

² Auk, XIV, 1897. 412.

³ Auk, XVII, 1900, 176.

⁴ 'Catalogue of Birds Known to Inhabit Western Canada. By the Rev. W. Hincks, F. L. S., &c.' Journal of the Board of Arts and Manufactures for Upper Canada, VII, 1867, 9-12 (also reprinted as a separate). This list was prepared in view of sending a collection of birds to the Paris Exhibition of 1867; it contains two hundred and seventy-one species, of which twenty-nine were not obtainable. By 'Western Canada' is meant Ontario, but the birds sent were with few exceptions taken at Toronto.

⁵ Macoun, Catalogue of Canadian Birds, 1900, 22.

⁶ Ottawa Naturalist, May, 1902.

refer to immature Black Terns; I have seen no specimens from the Great Lakes.

9. *Pelecanus erythrorhynchos*. AMERICAN WHITE PELICAN.—A rare straggler; has been reported several times, but no specimens have been taken here, though there are several Lake Ontario records.

10. *Pelecanus occidentalis*. BROWN PELICAN.—Prof. Hincks gives this in his list, and one was sent to Paris, no doubt the one recorded in one of the agricultural journals of an earlier date, the reference to which I have been unable to find. The bird was said to have been taken near Toronto.

11. *Somateria dresseri*. AMERICAN EIDER.—Prof. Hincks gives this in his list, and a pair were sent to Paris. I have carefully examined a number of eiders from the Great Lakes, including several recorded as this species; all prove to be *S. spectabilis*.

12. *Chen hyperborea*. LESSER SNOW GOOSE.—I have a specimen probably taken here, and Mr. John Bunker remembers one having been shot here some years ago. I have recently examined five specimens taken in southern Ontario; they all belong to this form, and it seems likely that *C. h. nivalis* does not occur on the Great Lakes.

13. *Anser albifrons gambeli*. AMERICAN WHITE-FRONTED GOOSE.—Said to have occurred here, but there seem to be no specimens in local collections. This goose, however, occurs in southern Ontario; two were taken at Port Perry, Ont., April 15, 1894, one of which I examined; there is an adult in the museum at Toronto, and one is recorded by McIlwraith, both from the St. Clair Flats.

14. *Plegadis autumnalis*. GLOSSY IBIS.—One was mounted by the Rev. John Doel many years ago and was said to have been taken at Toronto; McIlwraith records a pair from Hamilton, one of which was sent to Paris and is the one referred to in Prof. Hincks's list.

15. *Porzana jamaicensis*. BLACK RAIL.—Prof. Hincks gives this in his list, and one was sent to Paris, possibly the one taken at Ingersoll, Ont., in 1857.¹ Young Virginia Rails have been confused with this species.

16. *Numenius longirostris*. LONG-BILLED CURLEW.—There has been considerable confusion in the identification of the three curlews credited to the Great Lakes; a very careful search has failed to find any authentic specimen from this region of the Long-billed Curlew; I have, however, found the Hudsonian Curlew so named, and the Eskimo Curlew marked Hudsonian. There is in the museum of Toronto University a correctly identified Long-billed Curlew, but the collection is a general one, and the bird may have come from anywhere. Prof. Hincks gives it in his list, and one was sent to Paris; there are none in any Ontario collections I have examined.

17. *Ochthodromus wilsonius*. WILSON'S PLOVER.—Prof. Hincks gives this species in his list, and a pair were sent to Paris; beyond this nothing is known.

¹ Canadian Journal, IV, 1859, 389.

THE SPRING MOULT OF *LARUS ATRICILLA* LINN.

BY C. WILLIAM BEEBE.

Plate IX.

THE subject of the alleged color change in full-grown feathers in certain specific cases, would seem hardly worthy of renewed comment after the thorough papers of Allen and Chapman in the 'Bulletin' of the American Museum, Vol. VIII, 1896, pp. 1-44, and of others since then. But judging by analogous biological problems, it is only by reiterated and absolutely overwhelming proof, that any theory, which has once gained wide credence, can be refuted.

With this intent I offer a few brief notes made in a series of weekly observations on the spring moult of the head and neck of an individual Laughing Gull (*Larus atricilla* Linn.), which, brought as a nearly hatched embryo three years ago from Cobb Island, Virginia, was hatched and reared in the New York Zoölogical Park, and has assumed the full adult plumage.

Although the individual gull under consideration was kept in an indoor flying cage in a house heated to about 60° throughout the whole of last winter, yet on February 24, the time of the first examination, the early condition of the moult showed that it was normal as compared with the first appearance of black feathers in birds shot in Virginia. From this date on, the bird was confined in an outdoor flying cage, with plenty of room for flight.

February 24.—At this time the forehead is almost white, the feathers of this part showing but a small ashy portion near the base of the shaft. Proceeding backward over the crown and occiput, the winter feathers show an increasing amount of ashy color and consequent diminution of white tips to the barbs, until on the nape, the predominance of the former hue produces the effect of the dull nuchal ring of winter. The only feathers which appear loose in their sockets and about to be moulted are the small ones about the eyes. At this examination there are on the head twenty half-grown new feathers, all in a narrow area on the crown, partly

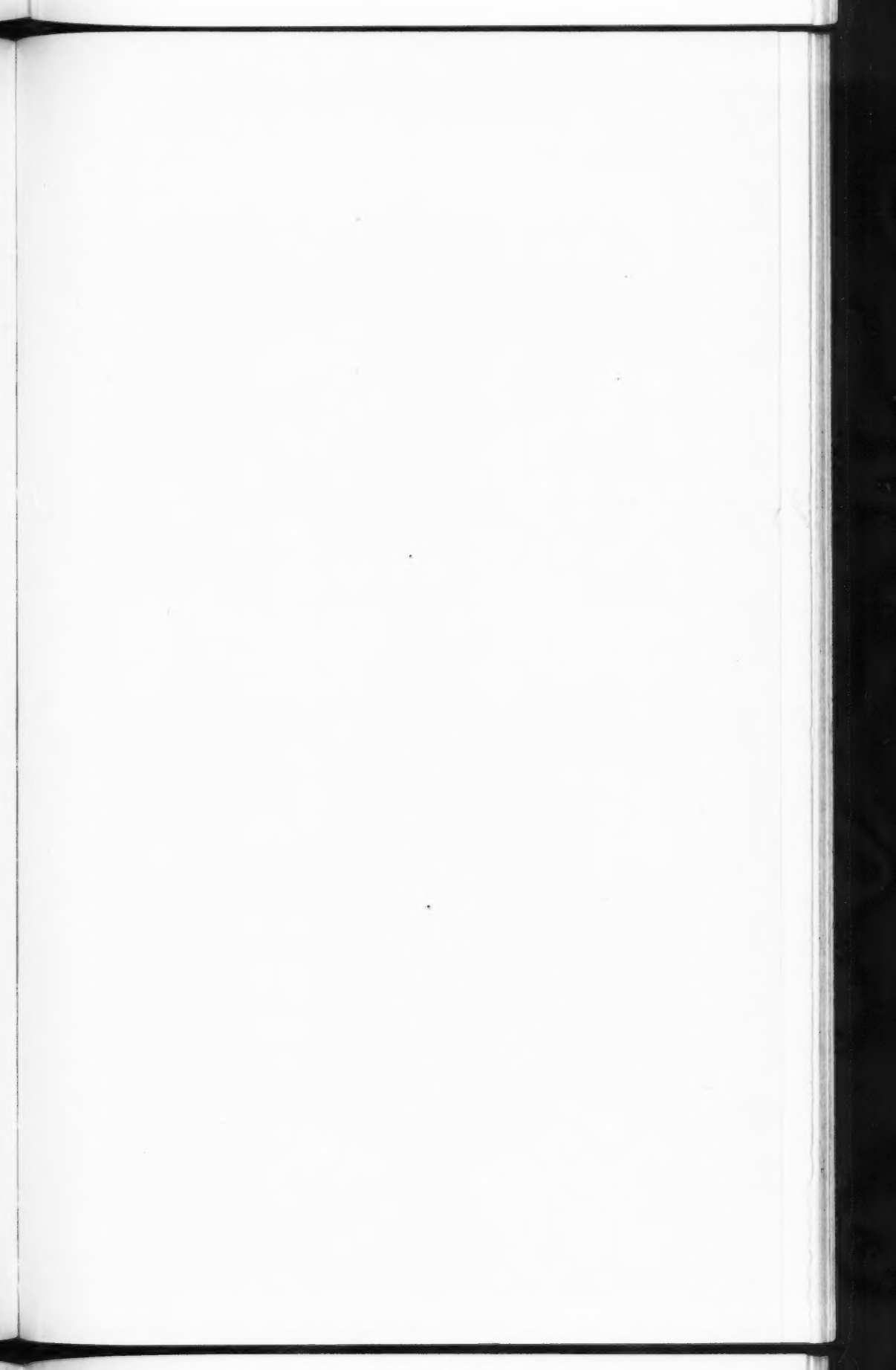




FIG. 1.—HEAD OF *Larus atricilla* IN WINTER PLUMAGE.

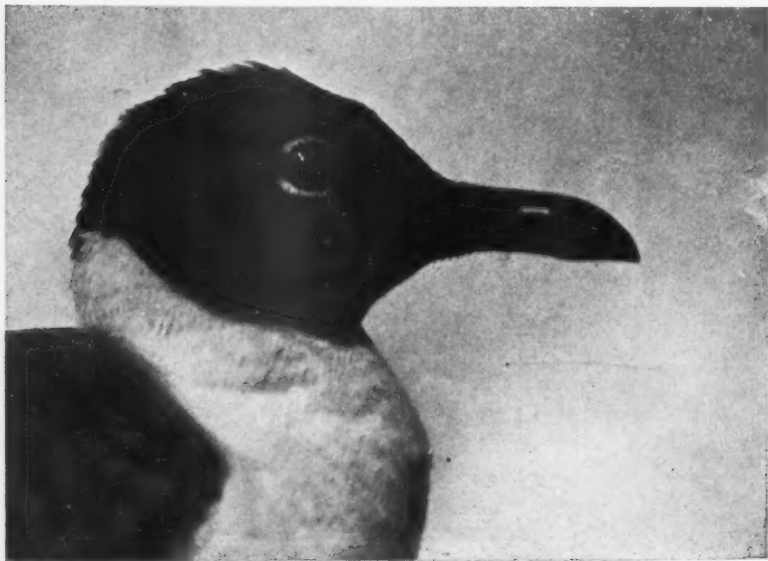


FIG. 2.—HEAD OF *Larus atricilla* IN FULL SPRING PLUMAGE.

protruding from their sheaths. These are of a uniform dark slate color with conspicuous white tips to all the barbs.

March 3.— Considerable change is apparent since last week's examination. Sixteen new feathers have appeared on forehead and crown, all with long white tips. The most marked change is about the eyes, where the white encircling feathers and the dark fluffy, down-like ones at the anterior edge have all appeared and grown to almost full size.

March 10.— Hardly any progress in the moult is noticeable since last week. A number of the winter feathers come out at a touch. The severe cold of the past week may have temporarily retarded the moult. An area three quarters of an inch square, on the crown, was cleared of new feathers (three in number) and thirty winter feathers, not much worn and firm in their sockets, were conspicuously marked with indelible ink.

March 19.— A very noticeable increase in new feathers has taken place, about eighty having pushed out the winter feathers and showing a full eighth of an inch of dark sheaths beyond the papillæ. Fourteen of the thirty marked feathers have been shed.

The white tips of the score of growing feathers which were observed on February 24 have almost disappeared. From careful comparison with other new feathers in various stages of growth, it appears that these white tips remain until the feather has reached its full size, then not singly, but almost *en mass*, they break off and are lost, never contributing, to any appreciable extent, to the color of the hood.

During the last two weeks a great deal of wear has taken place among the remaining winter feathers. Those on the crown and occiput (including the ink-marked ones) have lost much in symmetry of vane and in number of distal barbs. On the chin and throat, a similar condition of wear and tear is apparent to even a much greater extent, only here it is the bases of the feathers which have suffered most, in many cases having become completely denuded of barbs, while the distal half is still perfect. Everywhere is a scattering of new, half-grown feathers, although those which remain of the old plumage seem as firmly fixed as ever. The most careful search fails to reveal one feather, which, at a glance, cannot be instantly classified either as a worn-out winter,

or a fresh, perfect teleoptile; never a trace of regeneration of barbs or infusion of new color.

March 29.— Only three ink-marked feathers are left, the ink being as bright as ever, while in the place of those which have fallen out are the half-grown, slate-colored shafts of the new plumage.

April 4.— The moult is well toward completion superficially. All the inked feathers have disappeared, and although the new plumage of the dark hood seems dense and full-grown, yet everywhere new feathers are sprouting, hundreds showing only as tiny bluish sheaths. The half-grown feathers which are as yet protected by the full-grown ones still show conspicuous white tips, but no trace of this is visible in a casual examination of the unruffled surface of the hood; it presents a solid tone of dark slate, except where the few scattered winter feathers still remaining show as flecks of ashy white.

Examination of the growing feathers under a low power lens, with reference to the white tips, shows that all uniformity in extent is absent, except that the white extends down the vane to an equal distance on each side of the rachis. In two nearly-grown but unworn feathers, side by side, the white in one is a mere faint distal fringe, while the other is colorless for fully one-third of the vane. In frequent instances a narrow terminal band of normal dark pigment encloses the broader white area, emphasizing the unstable character of this passing color-phase.

In scores of feathers, from fully-moulted birds, which I examined under moderately high powers, not one barb showed the slender, transparent, slightly flattened tip which characterizes the absolutely unworn barb. So however fresh and perfect the feathers composing the newly acquired hood appear, yet every one has already passed through an important stage of wear. In order to demonstrate fully that the disappearance of the white tips was by wear and not by subsequent infusion of pigment in the growing feather, I inked a number of feathers on the colorless portions and found that the marks invariably disappeared by the time the feather reached maturity.

During the course of the moult the entire sheath of the mandibles peels off; in one case a large piece coming off at once, showing the fresh horn beneath bright carmine in color.

GENERAL NOTES.

The American Egret (*Herodias egretta*) in the Catskill Mountains.—On July 18, 1906, I saw at East Windham, New York, three of these birds on the topmost branches of a tree near a hemlock swamp and secured one of them, and another on the following day. Both birds were young females, and undoubtedly, according to a peculiar habit of the family to wander northward during the latter part of the summer, were erratic visitors in this locality. Upon inquiry among several inhabitants, I was informed that this species had never been seen by them in this locality before, nor had they bred there, and that the flock consisted of six birds on July 16, two days before my arrival.—J. A. WEBER, *New York City*.

A Second Yellow-crowned Night Heron (*Nycticorax violaceus*) at Portland, Maine.—A female of this species was shot at Thompsons Point, Portland, Me., April 11, 1906. It passed into the hands of Mr. Thomas James, foreman of the W. D. Hinds taxidermy establishment, and was obtained from him by Mr. Walter Rich, who very kindly gave it to the writer. The other specimen, also a female, was taken April 13, 1901, and recorded by Dr. H. H. Brock who now has it (Brock, *Auk*, XIX, p. 285).—ARTHUR H. NORTON, *Museum of Natural History, Portland, Me.*

A Late Spring Record for the Yellow Rail (*Porzana noveboracensis*) in Massachusetts, with Remarks on the 'Ornithological Mystery.'—On May 26, 1906, Mr. John J. Haley had the good fortune to secure a female Yellow Rail, which was found and retrieved alive by his dog while working over a fresh water meadow in Dedham. The bird was given to Mr. G. E. Browne, an experienced taxidermist, and he tells me that he found an egg started in the oviduct of the bird which he believed would have been laid in three or four days.

This instance, though not a positive breeding record, is of additional interest inasmuch as it may throw some light on the 'Ornithological Mystery' or 'Kicker' (Brewster, *Auk*, XVIII, Oct., 1901, pages 321 to 328). I had always supposed that the identity of the 'Kicker' was disclosed by Mr. J. H. Ames, *Auk*, XIX, Jan. 1902, page 94, where he describes the notes of a Yellow Rail, which he had in captivity, as identical with those of the 'Kicker' which Mr. Brewster had heard in Massachusetts, but Dr. Charles W. Townsend, in his 'Birds of Essex County,' published in 1905, refers to the 'Ornithological Mystery' as the Little Black Rail, after talking with Mr. Brewster about a bird that he heard in July, 1903.

To anyone not familiar with the 'Kicker' and acquainted only with the material published on the subject, this non-acceptance of Mr. Ames's solution seems to require some explanation. Mr. Brewster tells me that

the identicalness of the Yellow Rail and the 'Kicker' did not impress him after reading Mr. Ames's article for two reasons: first, that the Yellow Rail's notes were heard in the autumn, and second, that it uttered its cries when disturbed or irritated by the presence of persons in the room or by the light of the lamp. He also says, "nothing is more certain to my mind than that what I have heard is the spontaneous love song of the 'Kicker,' and that it is uttered chiefly if not solely during the season of reproduction. Assuming (what is quite possible, of course) that it may be occasionally produced in autumn, I do not consider it likely that it would be ever given under conditions such as Mr. Ames describes."

In discussing the probable identity of the 'Ornithological Mystery' Mr. Brewster dismisses the Yellow Rail with the statement: "There are no good reasons for suspecting that the Yellow Rail ever breeds in any part of New England." However, now that it has been found in Massachusetts at a corresponding date to some of the 'Kickers,' and under conditions which may possibly indicate its breeding in the vicinity, it may at least be considered in determining the identity of the latter. Theoretically it seems hardly probable that two different species of birds could utter exactly the same notes, regardless of season. This combined with the fact that the notes of the Little Black Rail as heard in the south, where its calls have been identified, do not bear a close resemblance to the notes of the 'Kicker' would seem to point towards the Yellow Rail as a solution of the mystery.

With the exception of gunners, few persons have met the Yellow Rail, and comparatively little is known of the bird during the breeding season. Mr. Edward A. Preble has described their notes in 'North American Fauna' (No. 22, page 93) and has written me as follows about the birds which he heard near York Factory, Hudson Bay: "The notes I heard were a succession of chips or clucks somewhat similar to the alarm notes of a Brown Thrasher, but less sharp. Stated in 'kiks' it would be 'kik-kik, kik kik kik.' Sometimes an additional 'kik' was given, making the last bar consist of four instead of three notes. I did not hear the 'crow' alluded to by Mr. Brewster, but it is quite possible I did not hear the full song, as my observation covered only a part of one day. In spite of this discrepancy I have been of the opinion that the notes described by Mr. Brewster were those of the Yellow Rail."

The secretive habits of both these Rails as well as the difficulty of observing or securing them in the spring makes one record at this season of exceptional value, and the above instance seems worthy of some consideration until more is known of the breeding range of *Porzana noveboracensis*.—F. B. McKECHNIE, *Ponkapog, Mass.*

The White-rumped Sandpiper in Wayne Co., Michigan.—I added the White-rumped Sandpiper (*Actodromas fuscicollis*) to the county list by securing a specimen May 20, 1906, on P. C. 50, Ecorse Township. This was badly shot and could not be saved so I returned June 3 and

saw about 40 of the birds. They were in two flocks and flew in such a compact body that it was impossible to pick out a single bird; consequently one discharge of the gun brought down seven. Despite the scarcity of records this is really a common species in eastern Michigan, according to my experience. For six years, beginning with 1897, my autumn vacations were spent on the lake shore near Port Austin, Huron County, and here this sandpiper was present in unvarying abundance and long after all other waders had retreated south with the exception of the Sanderling and Black-bellied Plover.—J. CLAIRE WOOD, *Detroit, Michigan*.

An Eskimo Curlew Captured at Sea.—It may be of interest to note that when the S. S. 'Baltic' was about half way between Ireland and Newfoundland, on May 26, 1906, an Eskimo Curlew (*Numenius borealis*) came on board. To be more accurate, at noon on that day the ship's position was Lat. 49° 06' North, Long. 27° 28' West; the bird came on board at perhaps 2 or 3 p. m. It gave evidence, which was noticed by at least one other passenger, of having eaten within a few hours. Being evidently fatigued, it was finally caught by one of the steerage passengers, and confined in a cage roughly made from a soap box. It was fed on chopped beef and chicken, and ate heartily, but died a short time before we reached the Sandy Hook Lightship — possibly from too much food and too little exercise.

This curlew finds its way to the British Isles with sufficient frequency to be mentioned in the English handbooks as an occasional visitor.—ROBT. BARBOUR, *Montclair, N. J.*

Contents of the Crop and Gizzard of a Young Ruffed Grouse (*Bonasa umbellus*).—The following is the result of the analysis made by the U. S. Department of Agriculture, of the contents of the crop and gizzard of an immature specimen of this species, captured July 18, 1906:

"3 percent of the food is animal, consisting of the following:

1 Carabid beetle	1 Tettigoniid
1 <i>Leptura vibex</i>	8 <i>Camponotus pennsylvanicus</i>
8 <i>Plagioderma armoricæ</i>	1 Snail
1 <i>Pyropyga nigricans</i>	

"97 percent is vegetable matter made up as follows:

About 105 seeds of touch-me-not (*Impatiens biflora*), 22 %.

About 1750 seeds of blackberry (*Rubus* sp.), 31%.

8 seed pods of violet (*Viola* sp.) containing approximately 25 seeds each, together with 114 free seeds, making in all about 514 seeds of this species, 14%.

About 100 seeds of ground cherry (*Solanum* sp.), 2%.

About 462 seeds of sedge (*Carex* spp.), twelve being in perigynia, 4%.

2 pods of *Juncus* sp. with many seeds, 1%.

About 8 seeds of grass, 2%.

A few seeds of *Oxalis* sp. and a few unidentified, 1%.

Some bits of dead leaves and green browse, the latter probably from touch-me-not, 20%.

"Mineral matter consisting of 2 pebbles, is 2% of the entire bulk."—
J. A. WEBER, New York City.

Swallow-tailed Flycatcher (*Muscivora forficata*) in New Brunswick.

—Through the kindness of Mr. W. H. Moore, Scotch Lake, N. B., the Biological Survey has received the first record of the Scissor-tailed Flycatcher in New Brunswick. The bird was shot May 21, 1906, by Mr. G. S. Lacey at Clarendon Station and has been mounted by Emmach Bus of Scotch Lake.—WELLS W. COOKE, Biological Survey, Washington, D. C.

Nests and Eggs of the Beardless Flycatcher (*Ornithion imberbe*).—

I purchased two sets of Beardless Flycatcher's (*Ornithion imberbe*) eggs of Mr. Gerald B. Thomas of Livermore, Iowa, who spent last spring collecting in British Honduras, Central America.

The type set was taken, with both parent birds, near the Manatee River, British Honduras, May 7, 1906. The set contained two eggs, advanced in incubation. The nest was placed in a small palmetto, 4½ feet from the ground and is composed of palmetto fiber and small weed stems, lined with cottony seed fiber of orchids. The nest is globular, with the entrance at the side.

The ground color of the eggs is white. They are spotted with lilac and dark and reddish brown about the crown, forming a ring. They resemble the eggs of *Dendroica pensylvanica*. The measurements are as follows: .66 × .48, .66 × .47 inches.

Set No. 2. This set was found May 16, 1906, about two miles distant from the place where the first set was taken. It contained two eggs, too far advanced to blow. The nest is made of palmetto fibers and other cottony fibers woven together between the stems of palmetto. It was placed 7 feet from the ground and resembles the type set.

One of the eggs is like the other two of the first set, but the other has more spots over the whole surface and the color is lilac rather than reddish brown. They measure .67 × .48, .68 × .49 inches.

Thomas writes as follows: "The first set of Beardless Flycatchers was taken from a nest in a small palmetto, about 4½ feet from the ground. The palmetto was on the edge of quite a clump of its kind and was situated in a flat sandy stretch of low land about five miles from the coast. The nearest fresh water was about two miles away.

"The other nest was in a similar location about two miles from where the type was found. This nest was about 7 feet from the ground and only a few rods from a freshwater creek. Two other nests — old ones — were found and both were built in palmettos, one about 12 feet from the ground and the other about 6 feet.

"The parent birds were very bold and perched within two feet of the nest while I was examining it, continually uttering their clear piping call and ruffling the feathers on their heads into a small crest. The female sat very close and almost allowed herself to be touched before flying."

JOHN E. THAYER, *Lancaster, Mass.*

The Prairie Horned Lark a Summer Resident in Connecticut.— In 'The Auk,' Vol. XXII, July, 1905, I reported having secured a pair of Prairie Horned Larks (*Otocoris alpestris praticola*) on May 25, 1905, at Litchfield, Conn., which were undoubtedly breeding birds and which made the first breeding record for Connecticut. Though no nest has yet been found, there can be no question but that these birds are regular summer residents in the vicinity of Litchfield, and not rare, for they have since been seen quite often both by my cousin, Mr. Harrison Sanford, and myself during the months of April, May, June, July, and August on several of the high ridges in the vicinity of the village.— E. SEYMOUR WOODRUFF, *Litchfield, Conn.*

The Bobolink in Colorado.— The migration and nesting of the Bobolink (*Dolichonyx oryzivorus*), which visits certain portions of Colorado, has always been of no little interest to bird fanciers and students.

The Bobolink was first seen by myself in Rio Blanco County, near Meeker, the county seat, in the late spring and early summer of 1905. I have found them in three localities about six miles apart and in each instance in a low or marshy place, usually six or eight in a place. They are quite quiet if the day is cloudy and could easily be overlooked, but should the sun suddenly appear the birds almost as suddenly fly into the air singing their beautiful little song on the wing. On bright sunshiny days I have always found them in the three places referred to above, viz., Cool Creek, Wilber Ranch, and Harp Ranch on White River. I have never seen the bird in any other place in Rio Blanco County than the three mentioned above.— F. H. HOPKINS, *Meeker, Col.*

Probable Breeding of the White-throated Sparrow in Connecticut.— On June 26, 1906, while tramping through a spruce swamp near Bantam Lake, Litchfield, Conn., I was surprised to hear the song of the white-throated Sparrow (*Zonotrichia albicollis*). I soon found and secured the bird, a male. The date and the fact that the testes were much enlarged makes it almost certain that this bird was breeding there, and if so, the first breeding record for Connecticut. I searched for sometime in hopes of finding his mate and clinching the record, but that I did not find her was not surprising considering the denseness of the thickets of spruce and larch.— E. SEYMOUR WOODRUFF, JR., *Litchfield, Conn.*

A New Song.— Several years ago, at Lakewood, New Jersey, I saw a small bird in the top of a maple on First Street which was singing a song entirely new to me. It was unmusical and very simple, but earnest and

persistent. I cannot suggest it more clearly in syllables than as *Chur*, *chur*, *chur*, *chur*, *chur*. The commas indicate pauses quite as long as the notes, each of which was about three quarters of a second in duration.

Perched on one of the topmost twigs of the tree, in a crouching attitude, the singer showed little of his form and nothing of his colors. I failed to identify him; and since I soon left Lakewood for the season, for a year the song remained a mystery to me.

The following April I heard it again, issuing from a tree-top within a few yards of the one from which I first heard it. Again I failed to identify the author of it, who kept amongst small branches in the tops of tall trees. After a day or two, however, he began to frequent small trees and shrubs. Then I discovered that he was a Chipping Sparrow.

During the earliest hours of the morning he sang at greater length than at other times. That is to say, the syllable *chur* was repeated a greater number of times before he took a rest. Often it was repeated a dozen times, occasionally even more. At no hour of the day was it uttered less than three times in succession.

This second year I heard the bird daily for several weeks,—until I left Lakewood again. The next year I did not stay at Lakewood late enough in the season to hear him. But early in the fourth spring I heard him there once more.

Direct evidence that a migratory bird—the same individual—has returned to the same locality for several years is not frequently obtainable. Here appears to be such evidence. In the present case, too, the bird returned to the same spot, and was only to be found within an area of about two acres.—NATHAN CLIFFORD BROWN, *Portland, Maine*.

The Towhee Nesting in Bushes.—On June 12, 1906, I found in Cohituate, a village of the town of Wayland, Mass., a nest built in a sapling white pine, at the top. This nest may have been three feet from the ground. The pine was within twenty feet or so of a submerged bog, but was on a dry strip of thin scrub-growth, very open, within a few feet of an open wood-road. The nest was a rather bulky one made of dry miscellaneous stuff, including dead weed stalks, and was lined entirely with soft dead grass.

It contained two eggs;—palpably those of the Chewink or Towhee Bunting. I was unable to identify the nest and eggs by the presence of the owners, but Towhees were in the neighborhood, and there is no question in my mind as to the accuracy of identification. A few hours later, on the same day, I came to a similar nest, fully as bulky as a robin's, built in the first fork of a rather large red cedar on the edge of an open field bordered by a pine grove. Although shadowed by a taller pine, the cedar was practically in the open. The nest was not concealed by any foliage, but was as openly placed as the nest of a semi-domesticated robin in the low fork of a household apple tree. The nest contained four *indubitable* Towhees' eggs, and was about 5½ feet from the ground. The

parent Towhees soon came to the rescue and by their actions put identification beyond a shadow of question. This was also in Cochituate village, Wayland, Mass.

Mr. Brewster regards this double experience as especially noteworthy in eastern Massachusetts. He believes that a few instances of bush-nesting by Towhees are on record as occurring in central Massachusetts. Personally, through a lifetime of bird experience (off and on) in eastern Massachusetts, I have never met with nor heard of a case of bush or tree-building by the Towhee there. With us of eastern Massachusetts the Towhee has ever been the closest kind of a ground-builder, so far as I know.— FLETCHER OSGOOD, *Chelsea, Mass.*

The Rough-winged Swallow (*Stelgidopteryx serripennis*) **Breeding near Springfield, Mass.**— In the July number of 'The Auk,' I reported the capture of a Rough-winged Swallow at Longmeadow near Springfield. Afterwards, not far from the place where this one was taken, three more were observed, and a pair of these were found to be breeding. The site of the nest was located in a ravine two hundred feet long, washed out a few years ago from a bluff twenty feet above the flood plain of the Connecticut River. This pair were successful in raising their young. I noticed that they flew low and did not pause in their flight, as do the Barn Swallows; they often came to feed their young through the woods adjacent to a portion of the ravine, flying not more than ten feet from the ground.— ROBERT O. MORRIS, *Springfield, Mass.*

The Water-Thrush (*Seiurus noveboracensis*) **Nesting in Rhode Island.**— In April of the present year I was searching through a swamp in Washington County for Red-shouldered Hawks' nests and came upon some uprooted trees in a small area which was very wet and swampy. In looking over one of these stumps I found a last year's nest which from its location gave me a suggestion that a Water-Thrush might have nested there.

On May 20, in company with Mr. John H. Flanagan, I again visited the swamp and upon approaching the spot where I found the old nest I heard a Water-Thrush singing. A search through the swamp was begun for its nest and after examining nearly every stump, I found it with the female sitting closely. We approached within two feet of the nest, thoroughly examining her, and were fully satisfied that it was the Water-Thrush (*Seiurus noveboracensis*). The bird would not leave when we struck the root and only left when I almost touched her with my hand, and flew into a tree within ten feet of us, and all the time we were there she was close by in clear view uttering a sharp chirp and kept her tail in motion like a Spotted Sandpiper's.

There were five eggs, incubated but three or four days. The nest was placed in a cavity in the roots about a foot above the water, which was

two feet deep here. It was very beautifully and compactly built of a dark green moss mixed with its seed stalks, fine rootlets, and a few pieces of dead maple leaves on the bottom. The lining was made of fine white rootlets, each piece about two inches long and which resembled horse hair. The outside was about four inches in diameter and two inches in depth with walls three quarters of an inch thick. We again visited the same locality on June 6 with the hope of finding a second set, but a careful search of every root did not reveal one. Three males were singing a few hundred feet apart and two birds, each in different parts of the swamp, were feeding young, just able to fly, one of which I shot, as I did also a male.

Near my home in South Auburn in former years I have seen the Water-Thrush during the migration in spring as early as May 7, and they have lingered with us until the fifteenth of the month. Probably the birds are mated as soon as they arrive on their breeding ground and commence to build their nest at once, for the first egg was probably laid in this nest by May 12.

This is the first instance of its breeding in Rhode Island, and from the number of birds noted, it now can be called a rare local summer resident, and spring and fall migrant.—HARRY S. HATHAWAY, *South Auburn, R. I.*

A Robin's Nest without Mud.—In the Summer of 1900 or 1901 I noted a Robin on Boston Common building a nest on a linden. No mud was then accessible anywhere on the Common and the Robin had apparently put no mud into this nest. It appeared to be built wholly of the dry trash used by English Sparrows in nest-building. It was some 25 feet up from the ground and could not be closely examined but from all points of view, in bulk and shapelessness as well as in material, it presented the appearance of an English Sparrow's nest of average or a trifle less than average size. If I had not watched the Robin in building it I should have called it an English Sparrow's nest, without hesitation. When first seen, the nest was nearly finished.—FLETCHER OSGOOD, *Chelsea, Mass.*

The Birds of Wyoming: Some Corrections.—Prominent among the earlier articles on Wyoming birds is one published by Dr. Brewer, entitled 'Notes on the birds of Wyoming and Colorado Territories, by C. H. Holden, Jr.; with additional memoranda by C. E. Aiken' (Proc. Boston Soc. Nat. Hist., XV, 1872, pp. 193-210). Although not definitely so stated, the implication is strong that all of these records were made in the vicinity of Sherman, Wyoming. The Holden notes were really taken at this locality, but those of Aiken refer to his experiences in the vicinity of Fountain, Colo., near Colorado Springs. A few months after the issue of this paper, Dr. Coues called attention (Am. Nat., VII, 1873, p. 420) to the true location of the Aiken records, but previous to the discovery by him of the facts of the case, he himself had already incorporated in the manuscript of his 'Birds of the Northwest,' some of the Colorado

records and credited them to Wyoming. Later he neglected to make the necessary changes, and several appear in the printed volume with the wrong localities.

Thirty years later, 'The Birds of Wyoming' was published as Bulletin No. 55 of the Wyoming Experiment Station. Throughout this Bulletin, all of the Holden and Aiken notes are used as pertaining to Wyoming, and in addition some of the erroneous records are copied from 'Birds of the Northwest.'

There are twenty-six species whose standing is not changed by the mistake, and it is only necessary to strike out the words "found by Aiken at Sherman." The records of eighteen other species are more seriously affected.

The quotation under *Myiarchus cinerascens* is one of the Coues mistakes, and so also under the same species, the reference to a note by Aiken on the occurrence in Wyoming of *Myiarchus crinitus*. There never was any such note.

The Aiken record of *Aphelocoma woodhousei* should be omitted, and also one of the Coues records. Two specimens are recorded (Birds of the Northwest, p. 219) as taken in Wyoming, but No. 59864 was really taken in Colorado. The other, No. 61082, was taken October 10, 1870, on the Green River not far from the location of the present town of Green River.

All the Aiken records should be omitted under the following species: *Coccothraustes vespertinus montanus*, *Carpodacus mexicanus frontalis*, *Junco hyemalis*, *Helminthophila celata lutescens*, *Compsothlypis americana*, *Sitta pygmaea*, and *Psaltriparus plumbeus*.

The specimens of *Leucosticte tephrocotis* recorded as taken at Sherman were actually secured there, but not by Aiken.

The three species, *Helminthophila virginiae*, *Catherpes mexicanus conspersus*, and *Regulus satrapa* are admitted to the list of Wyoming birds on the strength of the Aiken records, and hence so far as these records are concerned should be dropped from the State list. The Cañon Wren has been credited to Wyoming in the latest reviews of the family, but such a statement of range seems to have no valid basis.

The 'Hypothetical List' of the Birds of Wyoming contains four species, that are said to have been recorded by Aiken in Wyoming. Each of these is really a record for Colorado. The Rusty Blackbird of the Hypothetical List is an error of identification by Holden and should have been the Brewer Blackbird.

The statement is made, in treating of *Dendroica auduboni*, that in the 'Birds of Colorado' this species is said to breed above timberline. What is really said is that the species breeds in Colorado from 7,500 to 11,000 feet. The author of the 'Birds of Wyoming' failed to consider that although 11,000 feet is above timberline in Wyoming, it is a thousand feet below timberline in southern Colorado.—WELLS W. COOKE, *Biological Survey, Washington, D. C.*

RECENT LITERATURE.

Brewster's 'The Birds of the Cambridge Region of Massachusetts.'¹

— Mr. Brewster's monograph of 'The Birds of the Cambridge Region' is a quarto volume of 426 pages, and forms No. IV of the 'Memoirs of the Nuttall Ornithological Club.' In thoroughness of research and explicitness of detail it fully meets the high standard naturally anticipated for such a work under such authorship and auspices. The 'Cambridge Region,' as here defined, is subtriangular in outline, with a width near its southern boundary of about 12 miles, and a north-south extension, near its western border, of about 14 miles; the hypotenuse of the triangle has an approximate northwest-southeast trend of about 18 miles. It includes "the entire cities or towns of Cambridge, Watertown, Belmont, . . . Arlington, Lexington, and practically the whole of Waltham." The boundaries are thus partly natural — being Charles River on the south, and Stony Brook and Hobbs Brook on the southwest and west — and partly artificial. As explained by the author: "This in effect has been to treat of that territory (and no other) over which ornithologists and collectors, living in or very near Cambridge, have been accustomed to roam during excursions not exceeding a day in duration, and made directly from their homes. It must be confessed that this arrangement was originally dictated quite as much by sentiment as by practical or scientific considerations; — nevertheless it has proved not unsatisfactory on the whole, despite the fact that it has led to some perplexities, and perhaps inconsistencies also."

This limited area is as historic, ornithologically considered, as any locality in America, possibly excepting Philadelphia and its immediate environs. The seventeenth century records of Wood, Morton, and Josselyn have an important significance as indicating the general ornithological conditions obtaining at that early date in portions of Massachusetts immediately adjoining the 'Cambridge Region.' It was in Cambridge that Nuttall wrote his 'Manual,' where for about ten years (1823-1832) he was curator of the Botanic Garden; it was evidently here also that he gathered much of the original matter contained in the 'Manual.' Later (1832-1840) Cambridge was the scene of much careful field work by the three Cabot brothers, and Henry Bryant. "Between 1842 and 1860 they [the birds of Cambridge] also received more or less attention from James Russell Lowell, Thomas M. Brewer, Wilson Flagg, and various successive members of the Harvard Natural History Society, while from 1861 or

¹ Memoirs of the Nuttall Ornithological Club.—[No. IV.] — [The Birds of the Cambridge Region of Massachusetts.] By William Brewster.—[With four Plates and three Maps.]—[Cambridge, Mass. Published by the Club, July, 1906.—4to, pp. 1-426, pl. i-vii.]

1862 to the present day they have been constantly under the observation of an ever increasing number of ornithologists. Thus," continues the author, "we have knowledge of them extending back over a practically unbroken period of more than seventy years. This, although by no means complete at all points, is sufficient to enable us to trace some of the more important and interesting changes in the local distribution and abundance of many of the species — especially the larger ones — which have taken place during the period just indicated."

For a region so well known for so long a time, and so exhaustively studied by so many observers for the last twenty-five years, it seems a little singular that this should prove to be the first special publication on the birds of Cambridge and its immediate vicinity; the many previously published notes and records relating to it being widely scattered, and having reference mainly to the rarer species. The present monograph is of course based primarily and chiefly upon Mr. Brewster's own observations, covering a period of some forty years; but use has been made of all the hitherto published records; of the unpublished minutes of the Nuttall Ornithological Club, extending back to 1873; and of the personal field notes of a large number of the members of the Club, and of other ornithological friends of the author, which have been placed at his disposal, and which are of course duly accredited in the work.

The work opens without a formal 'table of contents,' — a rather inconvenient omission, and about the only point open to criticism in its otherwise admirable make-up. A 'Preface' of four pages (pp. 2-6) explains the basis and plan of the work, and contains the author's acknowledgments of indebtedness for assistance. An 'Introduction' of nearly 80 pages (pp. 7-84) is followed by the 'Annotated List' (pp. 85-398), the 'Explanation of Plates' (p. 598), and the 'Index' (pp. 401-426).

The Introduction, after a few pages of generalities, takes up the 'Cambridge Region' for treatment in detail by minor localities, beginning with the author's garden, comprising, prior to 1873, about six acres of smooth, gently sloping land, bordered by tall shade trees, and embracing orchards of apple, pear, and peach trees, shrubbery, and mowing fields; later it was reduced to two acres, the other four having been cut up into streets and house lots and built upon. The two periods are compared in respect to the bird population, the two lists of species given being notably in contrast. A list of the birds breeding in 'Norton's Woods,' near the present University Museum, from 1866 to 1874, is furnished by Dr. Walter Woodman, and another for Cambridgeport, in the "late sixties," is contributed by Mr. Henry W. Henshaw. The Charles River Marshes, Mount Auburn, — the Sweet Auburn of early days, and a favorite haunt of Nuttall, — and Fresh Pond, with its swamps and marshes, are all treated at length, with particular reference to their former characteristics and surroundings as contrasted with those of to-day, brought about by man's intervention — the filling in of much of the Back Bay basin, and the transformation of marshes, fields, and woodlands into crowded streets. These pertinent

and exceedingly interesting reminiscences will furnish a fund of grateful information to the local antiquarians of coming generations, and form also a most valuable record of the biologic changes in the region in question during the last half of the nineteenth century.

This historical résumé is followed by a nominal list of the species of the Cambridge Region, under vernacular names, divided into nine groups, according to "the character or status of their occurrence at the present time," as to whether permanent, summer, or winter residents, migrants, of casual occurrence, introduced, or extinct, etc., followed by several pages of comment. Then occur several pages devoted to 'Faunal Changes,' noting the species that have locally increased or decreased, and the known or apparent causes, as the case may be. Those whose local decrease is apparently due to persecution by the House Sparrows are the Least Flycatcher, Purple Finch, Song Sparrow, Indigo-bird, Tree Swallow, House Wren, and Bluebird. Following this are four pages on the 'Introduction of the House Sparrow,' giving a history of its introduction and its subsequent increase, and its influence upon the native bird fauna, including its dispossession methods in the case of the House Wren, Bluebird, and Tree and Eave Swallows, and its forays on the nests of vireos, warblers, and the smaller flycatchers.

Of special interest is the section devoted to 'Early Writers and Ornithologists' (pp. 69-84), including Thomas Morton, William Wood, and John Josselyn among the 'early writers,' and Nuttall, and Samuel and J. Elliot Cabot among the ornithologists. A portrait of Nuttall appropriately forms the frontispiece of the memoir, and nearly six pages are given to a sketch of his life and work. As a botanist Nuttall has been accorded high praise by subsequent botanical authorities, but Mr. Brewster calls his 'Manual' of ornithology, his only book on birds, largely a compilation. "Besides including borrowed statements and quotations for which he gave full credit, and much general matter which he made in a sense his own by re-writing it, he took long passages without acknowledgment and with but comparatively slight verbal changes from Wilson. . . .

"It is not less to be wondered at than regretted that Nuttall should have resorted so freely to this practice At the time of writing his 'Manual' he probably knew less about birds than is generally supposed Indeed it is chiefly to the literary excellence of his 'Manual' that this book owes its enduring popularity His accounts of his own experiences and observations are so very interesting and attractive that one is disappointed only because his book does not contain more of them. He was without question an exceptionally careful and accurate observer of everything which especially attracted his attention. His original descriptions of the habits and actions of birds are invariably good, and his renderings of their songs and call notes rank among the very best that have ever been published.

"It is probable that the period of Nuttall's greatest interest and activity in the field study of birds was that during which he was engaged in writing

the 'Manual,' and that his original contributions to this book are based very largely on observations made in the immediate neighborhood of Cambridge. Indeed the 'local coloring' of much of the matter is unmistakable. Such portions of it as clearly relate to his experience in the Cambridge Region afford testimony of the utmost credibility and value, but these, unfortunately, are too fragmentary and disconnected to give us any very clear idea of what the bird life of Cambridge was in Nuttall's time" . . . (pp. 79-81).

Mr. Brewster's criticisms of his method of borrowing from other authors without rendering due credit are illustrated by examples; but it is rather hard on Nuttall to hold him up for misdeeds that are only too common in other authors of even much more recent date without allusion to the fact that he is not the only sinner among writers of bird books.

The character of the 'Annotated List of Species' may best be stated in the words of the author, who says in his preface: "What I have had chiefly in mind has been to state as definitely as possible the times and seasons when each species has been noted, the numbers in which it has occurred, at long past as well as in very recent times, and the precise character and, in some instances also, situation of its local haunts." Hence "no attempt has been made to give full life histories of the birds," nor anything about their habits and songs except in some cases where mention of "these and kindred matters has seemed essential to a clearer understanding of the reasons governing the local occurrence or distribution of certain species, or desirable for the purpose of rendering commonplace or other tedious details more attractive." He says further: "I have included in their appropriate systematic order (1) birds which are known to have inhabited or visited the Cambridge Region in former times, but which no longer do so; (2) birds which have occurred very near but not actually within its boundaries; (3) birds which have been introduced by the direct agency of man; (4) birds which have been reported only on what appears to be insufficient or inconclusive evidence." The species mentioned that are considered as not "entitled to a present place in the natural fauna of the Region" are indicated by the use of smaller type for the text, which is also enclosed in brackets, and by omitting to number them as a part of the list. The native species of unquestioned present occurrences number 249; the additional species include 2 now extinct, 6 introduced by man's agency, and 19 considered as of doubtful record. The nomenclature, both technical and vernacular, is that of the A. O. U. Check-List, except that in some cases local English names are added, and in the case of the Arctic Horned Owl (pp. 203-205) where it is urged that the name that should be adopted for this subspecies is *subarcticus* Hoy.

In the preface (pp. 5, 6) is discussed the important question of what should be taken as satisfactory evidence for the occurrence of birds at localities where they do not properly belong. The author, very justly we think, does not admit that observation of the living bird is sufficient, and should not "be considered as establishing anything more than possi-

ble or probable occurrence — according to the weight and character of the evidence.” There may be exceptions to the rule, as in the case of species of easy recognition, like the Turkey Vulture, Swallow-tailed Kite, and the Cardinal, when reported by persons known to have had previous familiarity with the birds in life. “But on no authority, however good, should a mere field observation of any bird that is really difficult to identify, be taken as establishing an important primal record.” This is the basis of the author’s rulings in the present paper — a proper and the only safe basis in view of the present day methods of numerous amateur observers, who are too often burdening ornithological literature with ill-advised records.

Lack of space forbids detailed comment on the main text of the work, the ‘Annotated List of the Species,’ but its general character may be inferred from the excerpts already given from the author’s preface. For each species, following the technical name, is given usually, in a single line of small type, the general character of its occurrence, followed by three to five lines of small type respecting its ‘seasonal occurrence,’ in which dates of arrival and departure, and of nesting, are given, varying in character in accordance with the manner of occurrence of the species. Then follows, in larger type, a detailed statement, consisting of a few lines to several pages, as the case may require, in some instances including transcripts from the author’s notebooks running back to the later sixties. Many of these local bird histories are of exceeding interest, dealing as they do with the local increase or decrease of various species; while the five pages devoted to so common a bird as the Robin form a most charming bit of local bird lore.

The illustrations consist of three maps,—one of the ‘Cambridge Region’ of 1906, one of Cambridge at 1635, and one of Fresh Pond and its surroundings as they existed in 1886,—a portrait of Thomas Nuttall, a photogravure of a scene in the Maple Swamp (from a photograph taken by the author in June, 1900), a colored plate, by Fuertes, of *Acanthis brewsteri* (now thought to be probably a hybrid between *Acanthis linaria* and *Spinus pinus*), and a half-tone reproduction of a drawing of the Cabot shooting stand at the outlet of Fresh Pond, in use from about 1832 to 1840.

While relating to only a small area, and prepared with strict reference to the local standpoint, ‘The Birds of the Cambridge Region’ cannot fail to become a classic in the annals of faunistic ornithology.—J. A. A.

Hellmayr ‘On the Birds of the Island of Trinidad’.¹—“The present paper is primarily based on the extensive collections made by Mr. André or his collectors in different parts of the island. Besides these series, which amount to upwards of 1500 skins, the Tring Museum received a number

¹On the Birds of the Island of Trinidad. By C. E. Hellmayr. Novitates Zoologicæ, Vol. XIII, No. 1, February, 1906, pp. 1-60.

of birds collected by Dr. Percy Rendall in the districts of Savannah Grande and Tacarigua" (p. 1). In addition to the collection of Trinidad birds here mentioned the Tring Museum also contains a large number of specimens from Tobago and from the adjoining mainland. Mr. Hellmayr, therefore, being exceptionally well equipped to prepare the discussion of the relationships of the avifaunæ of these islands to one another as well as to that of the continent. Following this discussion, which occupies pages 2 and 3 of his memoir, he presents fully annotated lists of (1) "the species collected by Messrs. André, Percy Rendall and Chapman," (2) a list of the species found on the islands between Trinidad proper and the Paria coast," and (3) a list of those species "the occurrence of which is doubtful or has been wrongly given."

The first part of Mr. Hellmayr's paper is rendered especially valuable by his synoptic treatment of closely related groups having representatives in Trinidad. Here are described under new names *Pachysylvia aurantiifrons saturata*, *Mionectes oleagineus pallidiventris*, *Pitangus sulphuratus trinitatis*, *Dysithamnus affinis andrei*, *Celeus elegans leotaudi*, *Piaya cayana insulana*, and *Hydranassa tricolor rufimentum*. *Cyanerpes cærulea trinitatis* (Bp.) is recognized as a valid form, and *Sclateria* is proposed to replace *Heterocnemis*, preoccupied. *Chlorospingus leotaudi* Chapm. is shown to be the female of *Tachyphonus luctuosus* and *Lanio lawrencei* Scl. is considered to be an immature male of the same species; an "unfortunate" instance, as Mr. Hellmayr remarks, of one bird having been referred to three different genera, and at the same time an interesting comment on the nature of 'generic' characters in the class Aves.

Mr. Hellmayr's 'Hypothetical List' would have been more correct if he had examined Chapman's 'Further Notes on Trinidad Birds',¹ a paper which he seems not to have seen. In it he will find that *Piranga hæmalea* was included in Chapman's list on the basis of a captured specimen, the identity of which had since been confirmed by Mr. Ridgway, that of *Chatura cinereicauda*, omitted by Hellmayr, eight examples were taken, and that of *Chatura spinicauda*, the occurrence of which in Trinidad Hellmayr "greatly doubts," five specimens were secured. We may here also call attention to the *lapsus* in this 'Hypothetical List' of *Carduelis* (p. 58) for *Cardinalis*.—F. M. C.

Cherrie on Birds Collected in Trinidad.²—Although Mr. Cherrie collected in Trinidad only eight days (March 14–25, 1905) he secured specimens of three species not previously recorded from the island, one of which is described as new under the name of *Attila wightii*, while the others are

¹ Bull. Am. Mus. Nat. Hist., VII, 1895, pp. 321–326.

² Species of Birds Collected at St. Matthews Cocoa Estate, Heights of Aripo, Trinidad. By Geo. K. Cherrie. Science Bulletin [no number] of the Museum of the Brooklyn Institute of Arts and Sciences, pp. 1–6, issued June, 1906.

identified as *Chatura fumosa* and *Geotrygon venezuelensis*. Probably, however, the last named is equivalent to *Geotrygon linearis* of Léotaud's list.

Mr. Cherrie questions Hellmayr's reference of the Trinidad *Pachyrhamphus* to *niger cinereiventris*, considering it to be nearer *niger* or possibly separable, but confirms Hellmayr's recognition of a Trinidad form of *Pitangus derbianus*, which, indeed, Cherrie had already described in manuscript when Hellmayr's valuable paper appeared.—F. M. C.

Report on the Immigration of Birds in England and Wales in the Spring of 1905.—The British Ornithologists' Club, at a meeting held December 14, 1904, appointed a Committee, consisting of six members of the Club, with Dr. T. G. Penrose as chairman and Mr. J. L. Bonhote as secretary, to collect and collate evidence regarding the movements of the common migratory British birds, the investigation to be limited at first to England and Wales. The report of the Committee is published as Volume XVII of the 'Bulletin of the British Ornithologists' Club' (Svo, pp. 127, February, 1906), and is entitled 'Report on the Immigration of Summer Residents in the Spring of 1905.' An introduction of ten pages explains the method of conducting the work, which it is hoped will be carried on for a number of years, and a statement of certain general facts regarding the routes and manner of arrival of the species observed. Then follow special reports upon each of the 29 species here treated, with separate maps for each on which are plotted the localities and dates of observation. There is also a map showing all the points at which observations were made. The facts of observation are thus presented in detail in the text and graphically on the maps. An attempt is made to trace "when and where the birds entered the country, how they dispersed themselves over it, when they reached their breeding places, and, finally, how some of them passed through, and out of, the country." It is recognized that the results arrived at in a single year are only approximate, and hence no attempt is made to generalize from them to any great extent. If, however, the work should be continued for a series of years, as is contemplated, it is evident that a correct idea of the normal movements of birds within this area will be obtainable.—J. A. A.

A Hand-List of the Birds of the Philippine Islands.—This valuable work, by Richard C. McGregor and Dean C. Worcester,¹ on the plan of Dr. Sharpe's British Museum 'Hand-List of Birds,' is a most welcome and useful contribution to Philippine ornithology. The 'Hand-List'

¹ A Hand-List of the Birds of the Philippine Islands. By Richard C. McGregor and Dean C. Worcester. No. 36.—January, 1906. Department of the Interior. Bureau of Government Laboratories. Manila: Bureau of Printing, 1906.—Large Svo, pp. 123.

gives, in systematic sequence, a list of all the birds hitherto known to occur in the Philippine Islands, numbering 692 species, with references to the place of description in the British Museum 'Catalogue of Birds,' or elsewhere as the case may require, and states the known distribution of each species within the Archipelago. In the case of species having an extralimital range, this is first given in general terms, followed by the Philippine range, giving a list of all the islands where the species has been found to occur, as is done in the case of species restricted to the Archipelago.

The 'Introduction,' by Prof. Worcester, after stating the origin, scope, and general character of the work, gives a summary of the authors' conclusions relative to the zoological relationships of the islands, which are divided into twelve "zoologically distinct groups," each of which "has its highly characteristic species and forms a fairly natural division."

The preparation of the Hand-List was begun by Prof. Worcester some four years (now five years) ago, but was "little more than begun" when the services of Mr. Richard C. McGregor were secured as collector of natural history specimens, to whom the work was turned over. "It is only fair to Mr. McGregor," says Prof. Worcester, "to say that from that time until August 15, 1905, on which date he left for a well-earned rest in the United States, most of the work upon the Hand-List was performed by him. My own subsequent connection with it has been confined to consultation with him on doubtful points and the final editing of the manuscript."

The arrangement as regards sequence of families is that of Sharpe's 'Hand-List,' as far as published (Vols. I-IV), the remaining families¹ following the arrangement recently proposed by Dr. Shufeldt. Naturally great care has been exercised in the preparation of the list, no species having "been recorded definitely from any island except upon authority believed to be unimpeachable." It is proposed to publish addenda from time to time, as new information comes to hand, until sufficient matter has been accumulated to justify the revision of the entire list. The work is furnished with two indexes, one for the genera and species, the other for the higher groups.

It remains for us to extend to the authors our hearty congratulations for the evident thoroughness of preparation and the early appearance of this useful key to the ornithology of our possessions in the far East, which constitute a region of exceptional zoological interest.—J. A. A.

Oberholser's Revision of the Genus *Collocalia*.²—This interesting genus of Swifts is one of the most difficult in the entire family Micropodidae. In this detailed study of the group Mr. Oberholser recognizes 32 forms—

¹ A family heading for *Oriolus* (p. 106) appears to have been accidentally omitted.

² A Monograph of the Genus *Collocalia*. By Harry C. Oberholser. Proc. Acad. Nat. Sciences of Philadelphia, Vol. LVIII, Part 1, 1906, pp. 177-212.

21 species and 11 additional subspecies, of which 4 species and 6 subspecies are described as new. The group is divided into two subgenera, *Collocalia*, with the tarsus entirely unfeathered, and *Aerodramus* (subgen. nov.), with the tarsus more or less feathered. This is the sole character separating the groups, and while very marked in some species is "sometimes difficult to appreciate." The material on which this investigation is based — 159 specimens — is principally of recent collection, and represents very nearly all the recognized forms. An elaborate key to the species and subspecies facilitates their determination.— J. A. A.

New Names for North American Birds.— Mr. Oberholser claims¹ to have discovered an earlier name for Brewster's *Melospiza lincolni* *striata* in *Emberiza* (*Zonotrichia*) *gracilis* Kittlitz, published in 1858 and based on specimens from Sitka, Alaska. The two-line description, so far as it goes, seems to point to this bird rather than to either of the other small sparrows of that locality.

He also proposes² to adopt *funerea* in place of *ulula* for the European Hawk Owl, as both names admittedly refer to the same species, and *ulula* stands first on the page. The names of the two forms will thus stand as *Surnia funerea funerea* (Linn.) and *S. j. caparoch* (Müll.).

An earlier name for the Scarlet Tanager, he states,³ is found in *Loxia mexicana* Linn., so that this species should stand as *Piranga mexicana* (Linn.).

Mr. Bangs has also wrestled anew with the old question of the technical names of the Passenger Pigeon and the Mourning Dove.⁴ In the tenth edition of his 'Systema Naturæ' (1758) Linnæus described a pigeon as *Columba macroura*, based on references to both the Mourning Dove (plate 15 of Edwards) and the Passenger Pigeon (plate 25 of Catesby); but Mr. Bangs shows that Linnæus took his brief diagnosis and habitat from Catesby's plate and description of the Passenger Pigeon, for which the name *macroura* is hence to be retained, although of late currently applied to the Mourning Dove. The name for the latter must therefore be taken from Linnæus's twelfth edition (1766), where the name *macroura* is abandoned and the two species are each provided with wholly new names, the Passenger Pigeon being called *Columba migratoria* and the Mourning Dove *Columba carolinensis*. At the same time, the reference to Edwards (the West Indian form of the Mourning Dove) is made the basis of a third species, named *Columba marginata*, which antedates the name *bella* recently given to this race by Palmer and Riley. The names of these birds thus

¹ An Earlier Name for *Melospiza lincolni striata*. By Harry C. Oberholser. Proc. Biol. Soc. Washington, XIX, p. 42, Feb. 26, 1906.

² The Specific Name of the Hawk Owls. *Ibid.*, pp. 42, 43.

³ *Piranga erythromelas* versus *Piranga mexicana*. *Ibid.*, p. 43.

⁴ The Names of the Passenger Pigeon and the Mourning Dove. By Outram Bangs. *Ibid.*, pp. 43, 44.

become, respectively, *Ectopistes macroura* (Linn.), *Zenaidura carolinensis* (Linn.), and *Z. c. marginata* (Linn.). Unfortunate as is this transposition of names, it seems to be a clear case, based on the correct application of sound and generally accepted rules of nomenclature. As the first citation by Linnæus under *Columba macroura* was Edwards's figure and account of the West Indian form of the Mourning Dove, it was natural, in less exacting times, to fix the name on the Mourning Dove, as being the first species mentioned, rather than on the Passenger Pigeon; but of late, in delimiting an early composite species, it is proper, and has become customary, to restrict the name to that part of the composite most clearly indicated by the diagnosis, which in this case is beyond question the Passenger Pigeon.—J. A. A.

Howell on 'Birds that Eat the Cotton Boll Weevil.'—Investigations conducted by the U. S. Department of Agriculture in an effort to control the ravages of the cotton boll weevil include the relation of birds to the weevil. This work was begun in Texas in the autumn of 1904, and continued during the summer of 1905. A recently issued Biological Survey 'Bulletin' contains a further report of progress (for notice of the first report see *antea*, p. 119) by Mr. Howell,¹ based on the examination of the stomachs of birds collected in Texas during July to October, 1905. Of the 62 species examined, 12 were found to have eaten boll weevils. In all 28 species have been found to feed on the weevil, of which the orioles, black-birds, meadowlarks, and the killdeer are among the most important. "Birds," it is said, "are not the least important of the boll weevil's natural enemies, and every species ascertained to feed on it should be protected at all times and places, not only in the cotton-producing area, but along their migration routes." Attention is called to the fact that a number of species that prey upon the weevil are not at the present time protected in Texas.—J. A. A.

Palmer on Federal Game Protection.—Dr. T. S. Palmer, Assistant in Charge of Game Protection, Biological Survey, has given a concise history of Federal Game Protection in the United States,² with especial reference to the first five years of the twentieth century. Prior to the year 1900 the Federal Government had done comparatively little for the protection of game, and nothing for the prevention of the introduction of noxious animals and birds from foreign countries, nor for the regulation of interstate commerce in game, and very little for the protection of game in national parks and reservations. Many of the individual States had

¹ Birds that Eat the Cotton Boll Weevil—a Report of Progress. By Arthur H. Howell. U. S. Department of Agriculture. Biological Survey, No. 25, Washington, Government Printing Office, 1906.—8vo, pp. 22.

² Federal Game Protection—A Five Years' Retrospect. Yearbook of Department of Agriculture for 1905, pp. 541-562.

passed efficient game and bird protection laws, and through cases arising under them the United States Supreme Court had decided important points affecting the rights of States in the protection of game. Among them is the case of *Geer vs. Connecticut*, in 1896, in which the Supreme Court rendered a decision that maintained that game was the property of the State and not of the individual citizens on whose land it might be found, and that the State could protect its game by legislation in any manner it might see fit, even to the prohibition of its export to other States. "This decision," says Dr. Palmer, "gave a new impetus to game legislation throughout the country and encouraged the States to incorporate non-export provisions in their laws."

The first important Federal law for the protection of game, well-known as the Lacey Act, went into effect May 25, 1900, and was the beginning of a new era in Federal game protection. Its origin and history, and the provisions of its five sections, are here briefly stated. Since 1900 four acts relating to game protection have been passed by Congress, each having reference to special features of game protection or to special areas, as the District of Columbia, Alaska, and the establishment of a game refuge in Oklahoma.

The topics especially treated in the present paper, besides the Lacey Act, are the importation of foreign birds and mammals; interstate commerce in game; the dissemination by the Biological Survey of information concerning game protection, and "the propagation, uses, and preservation of birds"; recent Federal legislation; Federal coöperation with State officials in the enforcement of game-protective laws, and with Audubon Societies in the protection of nongame birds; and an account of the various Federal game preserves, eleven in number, of which eight have been established since 1900. Thirteen text-illustrations, in the form of small maps, show diagrammatically the progress of various important features of game protection during the last five years.

The great importance of the Lacey Act, or the Federal law of 1900, as an agency in game protection cannot well be over estimated. Its enactment "infused new life into State laws and made possible the enforcement of provisions which previously had been of little effect. When its operation began to be felt the changed conditions caused shippers to seek means by which they could continue their trade undisturbed. Every advantage was taken of defects in State laws, and various devices, technical or otherwise, were adopted to evade the provisions of the Federal law requiring the marking of packages. Quail and other game birds were concealed in trunks, barrels, egg-cases, and similar misleading packages, and were marked 'butter,' 'dressed poultry,' or 'household goods.' Special shipping tags were devised for the purpose of concealing the identity of the shipper and minimizing the risk which he assumed in forwarding the shipments to market, but these devices have been rendered more and more futile. All the States in the Union except Mississippi now prohibit export, and several of them have stopped the sale of all or certain kinds of game.

Stringent laws prohibiting sale and shipment have been enacted in Missouri and Nebraska. These and the equally sweeping legislation of Michigan, Minnesota, and Wisconsin can be and are rigidly enforced through the coöperative influence of the Federal law and the support their enforcement secures from the strong public sentiment that caused their adoption. In Chicago alone thousands of birds illegally shipped have been seized, and from the evidence thus secured many of the shippers in other States have been brought to justice. Under the Federal law more than 50 convictions have been secured, and in nearly half of these cases fines of \$100 or more have been imposed. In each of three cases they amounted to \$150, in two to \$200, and in two others to \$400."

It is only a few years since the rapid annual decrease of game birds in general and of certain species of nongame birds began to attract general attention; the ornithologists of the country and a few sportsmen interested in the preservation of game alone foresaw the doom speedily awaiting many species of our most desirable birds unless measures were promptly taken to check the slaughter waged by market gunners and the milliner's emissaries. The campaign of education, instigated and directed largely by members of the American Ornithologists' Union, has resulted in the rapid growth of a healthy public sentiment in respect to bird preservation, rendering it possible to secure the enforcement as well as enactment of efficient State and Federal laws before such action became too late to be effective. As shown by Dr. Palmer's recital of present conditions, the crisis in game protection is apparently passed and the outlook eminently hopeful.—J. A. A.

Game Protection in 1905.—Dr. Palmer's report on 'Game Protection in 1905'¹ treats of legislation, decisions of courts, administration and enforcement of laws, condition of game, feeding game, importations of live mammals and birds, and game preserves. The year 1905 was "chiefly noteworthy for volume of legislation, more effective enforcement of laws, and experimental and practical work in maintaining and increasing the stock of game." Substantial progress was made in solving the problem of restricting hunting by unnaturalized foreign-born residents, the closing of the game markets of Kansas City and St. Louis, the systematic feeding of game, and the importation of several promising species of game birds, as the introduction of the Gray Partridge, Capercalzie, and the Black Game, chiefly to Grand Island, Michigan, and of Mexican quail into North Carolina and Massachusetts. More attention is given to game preserves by several different States, and several bird reservations were set aside during the year by the United States.—J. A. A.

¹ Game Protection in 1905. By T. S. Palmer, Assistant, Biological Survey. Yearbook of U. S. Depart. of Agric. for 1905, pp. 611-617.

Miller on Birds from Southern Sinaloa.¹ — This paper is an account of the birds collected for the American Museum of Natural History by Mr. J. H. Batty in the coast and foothill region of Southern Sinaloa, Mexico, December 8, 1903, to November 5, 1904. From the several localities visited, ranging in altitude from 50 to 5500 feet, Mr. Batty obtained a total of 1164 specimens, representing 160 species and subspecies. As we should expect, the list indicates that the resident avifauna of this region is mostly southwest Mexican; but there appear many migrants from the north, the most notable of these, perhaps, *Cyanospiza cyanea*.

Mr. Miller, in a brief introduction, gives various details concerning the physiography of the region, and follows with a well annotated list of all the forms represented in the collection. An important feature is Mr. Batty's often extended notes on the colors of the soft parts as well as on nesting and other habits. The various critical notes concern principally zoological points, and in some cases are of considerable interest. The unique *Iache magica* proves to be but an abnormal plumage of *Iache latirostris*; and *Glaucidium phalaenoides* is divided into two races, for the northernmost of which the name *Glaucidium phalaenoides ridgwayi* Sharpe is used. Two new subspecies are described: — *Amizilis beryllina viola* from Jalpa, Sonora, and of somewhat doubtful validity; and *Amazona albifrons nana*, a depauperate form from Yucatan. — H. C. O.

Miller on Birds from Northwestern Durango.² — During most of 1903 — from January 19 to November 26 — Mr. J. H. Batty collected birds for the American Museum of Natural History in northwestern Durango, at various localities ranging in altitude from 2500 to 8500 feet. Mr. Miller refers the 829 specimens to 132 forms, and as in his previous paper on Mr. Batty's collections, adds the collector's data regarding habits, colors of bill, feet, etc., together with various critical comments of his own, which, although relating to no new forms, are in many cases noteworthy. The relationships of *Icterus abeillei* are discussed at length, and the apparently correct conclusion reached that it is a subspecies of *Icterus bullocki*. The *Progne subis* of Arizona and western Texas is referred unconditionally to *Progne subis hesperia*, but after an examination of specimens we are obliged to dissent from this opinion, since the lower tail-coverts are not the only character worth considering, and the birds, while intermediate, are nearer the typical race. The range of *Petrochelidon lunifrons tachina* is extended west to Fort Verde, Arizona, on

¹ List of Birds Collected in Southern Sinaloa, Mexico, by J. H. Batty, during 1903-1904. By Waldron De Witt Miller. Bulletin Amer. Mus. Nat. Hist., XXI, 1905, pp. 339-369.

² List of Birds Collected in Northwestern Durango, Mexico, by J. H. Batty, during 1903. By Waldron De Witt Miller. Bulletin Amer. Mus. Nat. Hist., XXII, 1906, pp. 161-183.

the strength of some intermediates between *Petrochelidon l. lunifrons* and *P. l. melanogastra*.

According to Mr. Miller, several of the resident birds treated are almost exactly intermediate between subspecies of the southwestern United States and their representatives in Central Mexico, making determination difficult. There are also many northern immigrants in the list. Catalogues such as this are of much value to the student of geographical distribution, as well as to others, particularly when the identifications are made with the care that these seem to have been.—H. C. O.

CORRESPONDENCE.

The Speed of Birds.

EDITORS OF THE AUK':—

Dear Sirs:—The enormous discrepancy between the speed assigned to small birds by those who have observed them at night, through telescopes, and the speed these same birds exhibit on ordinary occasions seems to require some explanation. Those who have watched birds from a train are well aware that a train moving from thirty to forty miles an hour will pass most of the small birds that chance to be flying in the same direction, while trains traveling not over fifty miles an hour have been noted as being faster than ducks. Ducks are celebrated for the speed of their flight, and among them the Old Squaw is especially rapid; and yet the noted speed of ducks is from forty to sixty miles an hour, and the most enthusiastic gunner would hardly credit a Quandy going down wind with more than seventy-five miles an hour. Homing Pigeons are exceptionally fast flyers and yet in 1901 the record for young birds flying a distance of 150 miles was made by a score of 5346 feet per minute. That this is extremely rapid is shown by records of 2207 and 3249 feet per minute for distances of from 110 to 150 miles, the number of birds participating being from 117 to 269. In view of these facts one may be pardoned for suspecting some error in calculations that ascribe a speed of one hundred and thirty miles per hour to small birds.

Very respectfully,

F. A. LUCAS.

The Supposed Types in the Lafresnaye Collection.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs:—The last number of 'The Auk,' Vol. XXIII, pp. 351-353, contains a review of our paper on the Passeres Tracheophones in the Paris Museum. Some criticisms referring to our statement about the supposed types in the Lafresnaye collection (now in Boston) necessitate a few remarks of ours.

First of all, we should like to say that we never thought of denying the existence of types in the Lafresnaye collection, for we are—as every ornithologist ought to be—well aware of the fact that Lafresnaye described a good many species "without any association with D'Orbigny" the undoubted types of which are certainly preserved in the Museum of the Boston Society of Natural History. Moreover, it is evident from what we said in the introduction to our study, that the remarks to which Dr. Allen (*l. c.* p. 352, note) took exception, relate only to those species which were described by Lafresnaye and D'Orbigny in their joint papers in the 'Magasin de Zoologie' for 1837 and 1838. With regard to these, there is no doubt that the examples in the Paris Museum are to be considered as the actual types, as will be shown in the following lines.

Dr. Allen's supposition that not many of them were indicated as such by the authors of the species they are alleged to represent is altogether erroneous. On the contrary, nearly every specimen of D'Orbigny's collection—as far as the mounted birds are concerned—bears, on the bottom of the stand, the note "type de la description *l. c.*" in D'Orbigny's own handwriting, and in every particular instance, the exact locality, date of capture, number of the collector and the Latin name under which it was mentioned in D'Orbigny's writing, are carefully indicated.

On the other hand, it appears that the so-called "types" of Lafresnaye and D'Orbigny in the Boston Museum have been labelled as such *not* by Lafresnaye himself, but by Verreaux,¹ and that many of them are without any indication of locality² and collector. Dr. Allen informs us that it was Jules Verreaux who catalogued the Lafresnaye collection, and adds that he was "an excellent ornithologist, capable of doing the work with proper discrimination through previous familiarity with its contents." We are sorry to say that the work does not give him much credit as it must have been executed in a rather cursory way. This will be illustrated by the following instances.

In the 'Bulletin of the American Museum of Natural History,' Vol. II, 1889, p. 243, Dr. Allen declares *Synallaxis frontalis* Pelz. to be synonymous with *S. azaræ* D'Orb., basing his conclusions upon *three* specimens in

¹ Cfr. Salvin, *Ibis*, 1874, p. 321.

² This is suggested by Dr. Allen's remark on two specimens of *Cinclodes* (*Bull. Amer. Mus. N. H.*, II, 1889, p. 89).

the Lafresnaye collection, marked "*Synallaxis azaræ* Lafr. et D'Orb. type."¹ First of all, this species has never been described by Lafresnaye, but by D'Orbigny (Voyage, Oiseaux, p. 246) who expressly says that he collected only a single specimen of the bird for which the name *S. azaræ* was suggested if it should turn out to represent a distinct species. This very example being still in the Paris Museum (cfr. Mém. Soc. Hist. nat. Autun, XIX, p. 70), how can there be three types in the Boston Museum? Furthermore, it must be understood that *S. frontalis* is not known to occur anywhere in Bolivia — the specimens from that country, mentioned by Dr. Selater, Cat. Birds Brit. Mus., XV, p. 41, belong to *S. griseiventris* Allen — though the species might yet be discovered in the plains of the East, as it is found in the adjoining Brazilian State of Mattogrosso. The Paris Museum does not possess any specimens from Moxos (one of D'Orbigny's localities for his '*S. ruficapilla*'), but there are two collected in the Argentine province of Corrientes which are, indeed, referable to *S. frontalis*. It is, therefore, more than probable that the supposed types in the Boston Society's Museum, if at all collected by D'Orbigny, came also from this locality. Unfortunately, Dr. Allen does not inform us where and by whom they were obtained.

In the same periodical, p. 206, Dr. Allen asserts that *Muscicapa olivacea* Lafr. et D'Orb. (= *Muscicapara boliviana* D'Orb.),¹ according to the type (no. 4686 Lafr. coll.), "is certainly the same as the bird commonly recognized as *Elainea obscura*." In the Paris Museum, there are two well-preserved skins with D'Orbigny's original labels which, in his own handwriting, bear the inscription: "No. 158, D'Orbigny, 1834. Yungas. *Muscicapara boliviana* D'Orb.— D. 219." These birds have nothing whatever to do with *Elainea obscura*, being about half as big, but represent a species of *Tyranniscus* which, in 1873, was redescribed by Mr. Selater under the name of *T. viridissimus*. One of us confronted the types of the two species and found them perfectly alike. The dimensions given by D'Orbigny (Voyage, Ois., p. 328: wing 55; tail 44; total length 128 mm.) alone, are sufficient to prove that his account can only refer to the *Tyranniscus*. It follows that the specimen of *Elainea obscura* in the Boston Museum is quite incorrectly labelled as the type of *M. boliviana*.

As a third example may be cited the following. According to Mr. Ridgway (Proc. U. S. Nat. Mus., X, pp. 494, 495) there are two so-called "types" of *Dendrocincla merula* "Lafr." in the Lafresnaye collection. One of them proved to belong to the species in question while the other was found to represent a widely different form, viz. *Dendrocincla olivacea lafresnayei* Ridgw. As a matter of fact, however, neither of them can be the type of *D. merula* which was described, as long ago as 1820, by Lichten-

¹ As a curiosity it may be mentioned here that these two references occur three times in Vol. XIV of the Cat. Birds Brit. Museum. First in the synonymy of *Phylomyias brevirostris* (p. 121), secondly as the original descriptions of *Tyranniscus bolivianus* (p. 134), and thirdly as doubtful synonyms of *Elainea obscura* (p. 152)!!!

stein from a Cayenne specimen in the Berlin Museum where it has been examined by one of us. Our remark ¹: "quelques-uns de ces types, perdus au milieu d'une masse de spécimens, ne portaient que les indications du voyageur, sans nom scientifique" refers to some of D'Orbigny's *skins* on the labels of which *no* Latin name was to be found.² Among the Tracheophonæ there were but four such specimens which, however, we had no difficulty in ascertaining to be the types of *Anabates rufigaudatus*, *A. gutturalis*, *A. certhioides* and *Upucerthia nigrofumosa*. Our reasons for these identifications are fully explained *l. c.*

It remains to say a few words about the birds described by Lafresnaye alone, and by O. des Murs, which are dealt with in our paper. First, it must be remembered that the whole collection of Count Castelnau's expedition to South America was deposited in the Paris Museum where, consequently, all the types of the 'Voyage dans l'Amérique du Sud' remained. It is, therefore, rather strange that those of *Dendroornis weddellii* Des Murs (*not* Lafresnaye) should be in the Boston Museum, yet Mr. Elliot (Auk, 1890, p. 169) goes even so far as to say: "I do not mean to argue that *D. weddellii* is not represented in the Paris Museum, but I doubt very much if any specimen there is rightly labelled as the type of the species." This statement is made on account of there being two mounted birds in the Lafresnaye collection labelled as types! Against this, we have to say that the Paris Museum possesses two adult birds of *D. weddellii* which are marked by Des Murs himself — the actual describer of the species — as "les types de la description dans l'ouvrage de M. Castelnau, p. 46." There can, therefore, be no question whatever as to which specimens are the *real types*. It does not seem to be at all certain that the examples in the Lafresnaye collection were obtained by Castelnau's expedition, and unfortunately Mr. Elliot does not inform us about this all-important point.

Of the species described by Lafresnaye alone three, namely: *Dendrexestastes devillei*, *Dendroornis dorbignyana* and *Xiphocolaptes simpliciceps* need no further comment, being accredited in the original descriptions to the Paris Museum. *Sittasomus amazonus* is said to have been discovered by Count Castelnau. Moreover, on the stand of both specimens in the French National Collection, there is a note from Des Murs' hand: "cet exemplaire portait de la main de M. de Lafresnaye *Sittasomus amazonus* Lafr. Type." The same applies to *Dendroornis obsoleta multiguttata* (Lafr.).

With regard to *Nasica guttatoides*, we refer the reader to the account in the Mémoires Soc. Hist. Nat. Autun, XIX, p. 99, where our reasons for considering the specimen from the Castelnau expedition as the type, are explicitly stated, and we cannot admit that it has only been incidentally mentioned by Lafresnaye, as the locality Lorette is given in the first

¹ Bull. Mus. Hist. Nat. Paris, 1905, p. 373.

²D'Orbigny's original labels are, with a very few exceptions, still attached to the skins.

place. It is, however, of very little importance whether the real type is in Paris or in Boston, for we have, we think, conclusively shown that the specimens with a short, blackish bill are but the young of the long-billed *D. rostrispallens*. That Mr. Elliot did not recognize the example in the Lafresnaye collection as a young bird, is not at all surprising as his material, when writing the review of the genus *Dendrornis*, was evidently altogether unsatisfactory.

It is, we believe, sufficiently demonstrated in the foregoing lines that the labelling of the Lafresnaye collection has *not* been done with proper discrimination¹), and from the fact that specimens are marked "types," it does not always follow that they are really entitled to be considered as such. We may conclude these remarks by saying that we have not been led by the intention "of disparaging the good name of another institution," but we deemed it a duty to call attention to obvious errors, in order to prevent in future similar mistakes as those which have resulted from wrongly labelled specimens in the case of *Synallaxis azaræ* and *Muscicapara boliviana*. We express the hope that our American fellow-workers will take up the matter and that they may enlighten us about the way in which the supposed types in the Lafresnaye collection are labelled, by whom they are marked as types, and about the exact data on the original labels of the collectors if such are extant, as we propose to do shortly in a paper on the specimens in the Paris Museum.

Very truly yours,

DR. A. MÉNÉGAUX,
C. E. HELLMAYR.

[The foregoing communication from the authors of the 'Passeres Tracheophones' of the Paris Museum of Natural History is a most welcome contribution to the pages of 'The Auk.' Had the explicit information now conveyed been given in the introduction to the series of papers reviewed in the preceding issue of this Journal (*antea*, p. 351) there would have been no basis for the strictures referred to above. As a result of them we have now information all ornithologists interested in the South American ornithis will be grateful for, presented as it is in such a commendable spirit.

It is to be hoped that some one fully equipped for the task will soon go over the types in the Lafresnaye Collection in the Boston Society of Natural History and make known their real status and history, so far as may be possible.— J. A. A.]

¹ Cfr. also Salvin's remarks in 'The Ibis,' 1874, p. 321.

NOTES AND NEWS.

HENRY BAKER TRISTRAM, Canon of Durham, a Corresponding Fellow of the American Ornithologists' Union, died at his home in Durham, England, March 8, 1906, at the age of 83 years and 10 months. He was born at Eglington, near Alnwick, May 11, 1822, and was graduated from Lincoln College, Oxford, in 1844, and became Canon of Durham in 1873. He was ordained a deacon in 1845, and a priest in 1846; owing to ill health, "he was ordered abroad, and passed two years (1847-1849) as naval and military chaplain in Bermuda."

In 1855-1857 he spent two winters in Algeria, and in 1858 made his first journey to Palestine, which country he many times revisited, his last visit being made in 1897. Although distinguished as an ornithologist, and especially as an authority on the birds of Palestine, he was also the author of several books of travel and general works on Palestine, including its fauna and flora, geography, geology, etc. But his ornithological interest was not restricted to a single region, as is evidenced by his large general collection of birds, which, when turned over to the Free Public Museums of Liverpool in 1896, numbered 20,000 specimens, referable to 6000 species, and contained 150 types. About the same time his large collection of eggs "was disposed of to the late Philip Crowley, of Waddon House, Croydon," and on Crowley's death, in 1901, became the property of the British Museum. He did not, however, cease collecting, and at the time of his death had amassed a second collection of nearly 6000 specimens, notably rich in oceanic and other rare birds, and which has recently been purchased by the Academy of Natural Sciences of Philadelphia.

Canon Tristram was one of the Founders and original Members of the British Ornithologists' Union, and throughout his subsequent life was a frequent contributor of valuable papers to 'The Ibis,' and to other natural history journals. His principal works, based on his explorations, are 'The Great Sahara: Wanderings South of the Atlas Mountains' (1860); 'The Land of Israel; a Journal of Travels in Palestine, undertaken with special reference to its physical character' (1865); 'The Land of Moab' (1873); 'The Fauna and Flora of Palestine' (1884).

VICTOR FATIO, a Corresponding Fellow of the American Ornithologist's Union, whose death has already been announced in this journal (*antea*, p. 356), was a leading authority on the vertebrate fauna of Switzerland, being the author of the 'Faune des Vertébrés de la Suisse,' the second volume of which, issued in two parts (1800 and 1904) in quarto, and embracing nearly two thousand pages of text and many text illustrations, is devoted to the birds of Switzerland. He was born in Geneva in 1838, and appears to have spent most of his life in Switzerland, where he received his preliminary education, and later studied at the Universities of Berlin

and Leipzig and at the Jardin des Plantes in Paris. His graduating thesis for his degree of Doctor of Philosophy at Leipzig was entitled 'De Avium corpore pneumatico,' and was published in Berlin in 1860. In 1866 he published an extended memoir on the structure and coloration of feathers ('Des diverses modifications dans les Forms et la Coloration des Plumes'). While in some respects it was a valuable contribution to the subject, his conclusions respecting changes of color within the mature feather were based almost wholly on groundless hypotheses.¹ He was for many years president of the Société Ornithologique Suisse, and published many notes and papers in its 'Bulletin,' in the 'Mémoires' of the Société de Physique et d'Histoire Naturelle de Genève, and elsewhere. He was also president of the Swiss Commission on the Phylloxera pest, and devoted much time to its study. He was elected a Foreign Member of the British Ornithologists' Union in 1872, a Corresponding Member of the American Ornithologists' Union in 1884, and of the London Zoölogical Society in 1894. He was also the recipient of many orders and decorations from various European countries, in recognition of his contributions to science.

MRS. EDWARD ROBINS, an Associate of the American Ornithologist's Union, and Secretary of the Pennsylvania Audubon Society, died at her home in Philadelphia, July 2, 1906. In 'Bird-Lore' (VIII, 1906, p. 142) we find the following tribute to her memory:

"To all who knew Mrs. Robins, her work in behalf of birds and animals is familiar. Ten years ago, entirely through her energy, the Pennsylvania Audubon Society was established at a time when only one other organization of the kind was in existence, and she continued actively in charge of its work until failing health compelled her to relinquish it. Mrs. Robins was also active in the Pennsylvania Society for the Prevention of Cruelty to Animals, and was President of the Spencer Baird Ornithological Club.—W. S."

THE July (1906) number of the 'Journal für Ornithologie' contains (pp. 329-358) Herman Schalow's memorial address on the late Dr. Jean Cabanis, which was read at the March session of the Deutschen Ornithologischen Gesellschaft. It is accompanied by a portrait of Cabanis, and a list of his published ornithological writings. The titles number 168, and cover the period 1845 to 1892. The brief annotations consist chiefly of the names of the new genera and species described, the former numbering 216 and the latter 422. One genus and 23 species have been named in Cabanis's honor by other ornithologists. The biography, with its bibliographical supplement, forms a valuable tribute from a devoted pupil to his master.

'THE CONDOR' states (VIII, July, 1906, p. 101) that the Audubon Society of California was organized at Los Angeles, May 31, 1906, with the

¹ Cf. Bull. Am. Mus. Nat. Hist., VIII, 1896, pp. 36-38.

following officers: President, David Starr Jordan; Vice-Presidents, Prof. C. F. Holdér and Dr. F. W. D' Evelyn; Secretary, W. Scott Way. This State organization will have supervision of the local Audubon societies, and will coöperate with the National Association of Audubon Societies in the work of bird protection.

A BEQUEST of \$100,000 has been left to the National Association of Audubon Societies by the will of the late Albert Willcox of New York City, who before his death, August 13, 1906, had been a liberal contributor to the funds of the National Association. The Association is thus provided with greatly needed funds for the more vigorous prosecution of its urgent work, and with the nucleus for a permanent endowment. There is need, however, for further increase of funds, and it is to be hoped that other bequests may follow. The present gift is especially opportune.

THE Seventh International Zoological Congress will meet in Boston, Mass., in August or September, 1907, under the presidency of Mr. Alexander Agassiz, according to the announcement made in the preliminary notice issued by the Executive Committee, which says further:

The arrangements for the Seventh Congress are in charge of a committee of the American Society of Zoologists, consisting of Messrs. Alexander Agassiz, chairman; Samuel Henshaw, secretary; W. K. Brooks, H. C. Bumpus, E. G. Conklin, C. B. Davenport, C. H. Eigenmann, L. O. Howard, D. S. Jordan, J. S. Kingsley, F. R. Lillie, E. L. Mark, C. S. Minot, T. H. Morgan, H. F. Osborn, G. H. Parker, R. Rathbun, J. Reighard, W. E. Ritter, W. T. Sedgwick, C. W. Stiles, A. E. Verrill, C. O. Whitman, E. B. Wilson, and R. R. Wright.

The meetings will open in Boston, where the scientific sessions will be held, and from which excursions will be made to Harvard University and to other points of interest. At the close of the Boston meeting the Congress will proceed to Woods Hole, Massachusetts, visiting the Station of the United States Bureau of Fisheries, the Marine Biological Laboratory, and the collecting grounds of the adjacent seacoast. The journey to New York will be by sea through Long Island Sound. In New York the Congress will be entertained by Columbia University, the American Museum of Natural History, and the New York Zoological Society, and excursions will be made to Yale University, to Princeton University, and to the Carnegie Station for Experimental Evolution. From New York the members will proceed to Philadelphia and Washington. Tours will be planned to Niagara Falls, to the Great Lakes, Chicago, and the West. It is hoped that arrangements can be made for reduced transportation for members of the Congress on transatlantic lines and on the American routes.

The first formal circular announcing the preliminary program of the Congress will be issued in October, 1906.

The Executive Committee is as follows: G. H. Parker, Chairman; Sam-

uel Henshaw, Secretary; L. O. Howard, J. S. Kingsley, E. L. Mark, H. F. Osborn. All inquiries should be addressed to G. H. Parker, Seventh International Zoölogical Congress, Cambridge, Mass.

THE annual meeting of the Maine Ornithological Society will be held at the rooms of the Portland Society of Natural History, Portland, Maine, "on Friday and Saturday following Thanksgiving day."

THE TWENTY-FOURTH ANNUAL CONGRESS of the American Ornithologists' Union will be held at the U. S. National Museum, Washington, D. C., beginning on the evening of Monday, November 12, 1906. The evening session will be for the election of officers and members, and for the transaction of routine business, and action on proposed amendments to the By-Laws. Tuesday and the following days of the session will be for the presentation and discussion of scientific papers, and will be open to the public. Members intending to present communications are requested to forward the titles of their papers to the Secretary, Mr. John H. Sage, Portland, Conn., so as to reach him not later than November 10.

INDEX TO VOLUME XXIII.

[New generic, specific, and subspecific names are printed in **heavy-faced** type.]

- ABBOT, John, unpublished letter of, 365-368.
 Acanthis brewsteri, 112, 470.
 linaria, 102, 145, 313.
 Accipiter atricapillus, 100, 314, 420.
 atricapillus striatulus, 142.
 cooperi, 142, 173, 344, 413, 420.
 velox, 142, 173, 344, 420.
 Actitis macularia, 14, 109, 141, 413, 451.
 Actodromas bairdii, 449.
 fuscicollis, 59, 173, 335, 449, 458.
 maculata, 59, 141, 449.
 minutilla, 59, 141, 449.
 Adams, Chas. C., notice of 'An Ecological Survey in Northern Michigan,' directed by, 354.
 Æchmopterus occidentalis, 139.
 Aëdon, 228.
 Ægialitis meloda, 451.
 meloda circumcincta, 273, 452.
 nivosa, 384, 452.
 semipalmata, 45, 59, 142, 451.
 Aërodramus, 474.
 Aëronautes melanoleucus, 76, 414.
 Æstelata hasitata, 443.
 Agelaius gubernator, 415.
 phoeniceus, 45, 155.
 phoeniceus bryanti, 399.
 phoeniceus caurinus, 145.
 phoeniceus fortis, 345, 422.
 phoeniceus neutralis, 415.
 tricolor, 415.
 Agyrtria brevirostris, 80.
 Aix sponsa, 140, 444.
 Ajaja ajaja, 397.
 Alauda spragueii, 308.
 Alca torda, 441.
 Alle alle, 441.
 Allen, Francis H., breeding of the Prairie Horned Lark in eastern Massachusetts, 101; possible breeding of *Junco hyemalis* in Essex County, Mass., 103.
 Allen, J. A., the name of the Western Sandpiper, 97; subgenera, and other matters, 122-125.
 Allenia apicalis, 236.
 Allison, Andrew, notes on the birds of Hancock County, Miss., 44-47; notes from Hancock County, Miss., 232. See also Beyer, Geo. E.
 Amazilis beryllina viola, 478.
 graysoni, 388.
 Amazona albifrons, 387.
 albifrons nana, 478.
 finschi, 387.
 oratrix, 387.
 American Ornithologists' Union, Twenty-third Congress of, 92-96, 127; meetings of the Committees on the Nomenclature and Classification of North American Birds, and on the Revision of the A. O. U. Code of Nomenclature, 125, 247; Twenty-fourth Congress of, 487.
 Ammodramus caudacutus, 65.
 henslowii, 15.

- Ammodramus maritimus*, 65.
 maritimus fisheri, 65-66.
 maritimus macgillivrayi, 65, 226.
 maritimus peninsulæ, 66.
 nelsoni, 65.
 nelsoni subvirgatus, 65.
Ampelis cedrorum, 46, 146, 233, 342, 390.
Amphispiza belli nevadensis, 422.
 bilineata deserticola, 422.
Anabates certhioides, 482.
 gutturalis, 482.
 ruficaudatus, 482.
Anas acuta, 309.
 boschas, 140, 219, 444.
 breweri, 308, 310.
 carolinensis, 309.
 crecca, 309.
 glocitans, 310.
 obscura, 154, 218, 444.
 obscura rubripes, 56, 315, 444.
Anhinga anhinga, 217.
Ani, 6, 399.
 Groove-billed, 6, 106, 371, 388.
Anser albifrons gambeli, 141, 183, 453.
 Anthony, A. W., random notes on Pacific Coast Gulls, 129-137; where does the Large-billed Sparrow breed? 149-152; stray notes from Alaska, 179-186.
Anthus aquaticus, 300.
 pensilvanicus, 46, 147, 159, 341, 342.
 pipiens, 304, 307.
 spilonetta, 304.
 spraguei, 232.
Antrostomus carolinensis, 15, 343.
 vociferus, 22, 174.
Aphelocoma californica, 415.
 californica obscura, 415.
 sieberi arizonæ, 422.
 woodhousei, 422, 465.
Aphriza townsendi, 310.
Aquila chrysaëtos, 62, 142, 314, 420.
Aramus giganteus, 231.
Archibuteo ferrugineus, 420.
 lagopus sancti-johannis, 314.
Ardea alba, 310.
 cinerea, 260.
 egretta, 310.
 herodias, 45, 57, 108, 252-262, 383, 413, 419, 447.
 herodias fannini, 141.
 herodias wardi, 398.
 occidentalis, 307, 397.
Ardetta exilis, 14, 447.
 neoxena, 447.
Arenaria interpres, 59, 335.
 morinella, 59, 335, 452.
 Arnow, Isaac F., the Seaside Sparrow nesting in bushes, 226.
Arquatella maritima, 449.
Asilus, 229.
Asio accipitrinus, 143.
 wilsonianus, 143, 337, 421.
Astragalinus tristis, 15, 46, 155.
 tristis salicamans, 145, 416.
 lawrencei, 416.
 psaltria hesperophilus, 416.
Astur fuscus, 208.
Asturina plagiata, 386.
Asyndesmus torquatus, 144, 421.
Attila wighti, 471.
 Audubon, John James, letters of, previously unpublished, 194-209, 318-334; a bibliography and nomenclator of his ornithological works, 298-312.
 Audubon, John W., his 'Western Journal: 1849-1850,' announced, 128.
 Audubon Societies, National Association of, First Annual Meeting, 126; bequest to, 486.
 Auk, Razor-billed, 441.
 Auklet, Rhinoceros, 139.
 Avocet, American, 402, 413, 448.
Aythya affinis, 140, 383, 445.

- Aythya americana*, 140, 444.
 collaris, 140, 445.
 marila, 140, 445.
 vallisneria, 140, 444.
- BEOLOPHUS* *bicolor*, 47.
 inornatus, 187, 417.
 inornatus griseus, 424.
 inornatus restrictus, 186-188.
 wollweberi, 424.
- Bailey, H. H., ornithological notes from Western Mexico and the Tres Marias and Isabella Islands, 369-391.
- Bailey, Vernon, notice of his 'Birds known to eat the Boll Weevil,' 119.
- Baird, Spencer F., previously unpublished letters of, 194-209, 318-334.
- Baldpate, 140, 327, 332, 419.
- Bangs, Outram, notice of his papers on *Icterus gualanensis* Underwood, and the name of the Panama Green Honey Creeper, 235; notice of his 'The Names of the Passenger Pigeon and Mourning Dove,' 474.
- Barbour, Robt., an Eskimo Curlew captured at sea, 459.
- Bartramia *longicauda*, 59, 277, 280, 450.
- Batty, J. H., his field work in Mexico for the American Museum of Natural History, 128; obituary of, 356.
- Beard, Dan, Long-eared Owls resident at Flushing, Long Island, N. Y., 337.
- Beaupré, Edwin, unusual nesting site of the Black Duck (*Anas obscura*), 218.
- Beebe, C. William, notice of his 'The Ostriches and their Allies,' 114; notice of his 'Two Bird Lovers in Mexico,' 115; the European Lapwing on Long Island, N. Y., 221; the spring moult of *Larus atricilla*, 454-456.
- Bergtold, W. H., concerning the thick-billed Parrot, 425-428.
- Beyer, Geo. E., and Andrew Allison and Henry H. Kopman, list of the birds of Louisiana, 1-15; 275-282.
- Bird, Bee, 399.
 Black, 399, 400.
 Man-o'-War, 372, 375, 382, 397.
 Molasses, 393.
 Red, 400.
 Red-billed Tropic, 372, 374, 375, 378.
- Bishop, Louis B., the European Turnstone in Massachusetts, 335; *Uranomitra salvini* in Arizona, 337; notes from Connecticut, 344.
- Bitterling, 398.
- Bittern, American, 56, 141, 446.
 Cory's Least, 447.
 Least, 190, 447.
- Blackbird, 393, 394.
 Bicolored, 415.
 Brewer's, 14, 145, 415, 422, 465.
 Colima Boat-tailed, 390.
 Common Crow, 300.
 Florida Red-winged, 45.
 Northern Red-winged, 422.
 Red-winged, 5, 155.
 Rusty, 280, 282, 317, 465.
 San Diego Red-winged, 415.
 Tricolored, 415.
 Yellow-headed, 14, 415, 422.
- Black-head, 332.
- Blain, A. W., Jr., the Michigan Ornithological Club, 347.
- Blake, Francis G., winter record for the Robin in Hanover, N. H., 229.
- Bluebird, 8, 12, 47, 327, 347, 468.

- Bluebird, Chestnut-backed, 425.
 Bluebird, Mountain, 425.
 Western, 148, 409, 418.
 Boat-tail, Colima, 390.
 Bobolink, 280, 281, 461.
 Bob-white, 6, 119, 142.
 Bonasa umbellus, 336, 459.
 umbellus sabini, 142.
 Bonhote, J. L., and others, notice
 of 'Report on the Immigration
 of Summer Residents [in England
 and Wales] in the Spring of 1905,'
 472.
 Booby, 6.
 Blue-footed, 369, 375, 379.
 Brewster's, 374, 375, 380.
 Botaurus lentiginosus, 14, 56, 141,
 446.
 stellaris, 236.
 Bowdish, B. S., some breeding
 Warblers of Desmarest, N. J.,
 16-19.
 Bowles, J. H., a list of the birds of
 Tacoma, Washington, and vicini-
 ty, 138-148.
 Brachyramphus marmoratus, 139.
 Bradlee, Thomas S., Audubon's
 Shearwater and Peale's Petrel
 breeding in Bermuda, 217.
 Braislin, William C., the Florida
 Gallinule nesting on Long Island,
 N. Y., 189-194.
 Brant, Black, 141.
 White-bellied, 446.
 Branta bernicla glaucogastra, 446.
 canadensis, 315, 446.
 canadensis hutchinsi, 141,
 446.
 canadensis minima, 183.
 canadensis occidentalis, 141.
 Breninger, George F., notice of
 death of, 356.
 Brewster, William, occurrence of
 the Lapwing (*Vanellus vanellus*)
 and the Turkey Buzzard (*Cath-
 artes aura*) in Newfoundland,
 221; review of his 'Birds of the
 Cambridge Region of Massachu-
 setts,' 466-470.
 Brown, Herbert, the Water Turkey
 and Tree Ducks near Tucson,
 Arizona, 217.
 Brown, Nathan Clifford, the Mary-
 land Yellow-throat and Bach-
 man's Finch near Camden, S. C.,
 in winter, 227; a Ruffed Grouse
 near Camden, S. C., 336; the
 Titlark at Portland, Me., in
 spring, 342; a great flight of
 Robins and Cedar-birds, 342;
 a new song, 461.
 Bryant, Walter E., last illness and
 death of, 376.
 Bubo virginianus pallescens, 421.
 virginianus saturatus, 143.
 virginianus subarcticus, 469.
 Buffle-head, 140, 332, 445.
 Bull Bat, 399.
 Bunting, Black-throated, 279.
 Indigo, 9, 156, 278, 282.
 Lark, 423.
 Lazuli, 146, 417.
 Painted, 9.
 Snow, see Snowflake.
 Bush-Tit, California, 412, 418.
 Lead-colored, 425.
 Puget Sound, 148.
 Sacramento, 418.
 Buteo borealis, 23, 45.
 borealis calurus, 142, 414,
 420.
 harrisi, 307, 310.
 lagopus, 310.
 latissimus rivieri, 237.
 lineatus, 173.
 lineatus alleni, 14, 399.
 platypterus, 14, 173, 344.
 swainsoni, 414.
 vulgaris, 310.
 Butorides virescens, 14, 57, 398,
 432-436, 447.
 virescens anthonyi, 235, 413.

- Butler, Amos W., some notes on
Indiana birds, 271-274.
- Butorides virescens brunnescens,
235.
virescens maculata, 235.
- Buturlin, S. A., notice of his 'The
Breeding-grounds of the Rosy
Gull,' 348.
- Buzzard, Turkey, 221, 366, 399.
- CABANIS, Jean Louis, obituary of,
247; published writings of, 485.
- Cacique, Mexican, 389.
- Calamospiza melanocorys, 423.
- Calcarius lapponicus, 314.
ornatus, 422.
- Calidris arenaria, 59, 173, 450.
- California Academy of Sciences,
destruction of its collections, 358.
- California Audubon Society, 486.
- Callender, J. P., the Redpoll breed-
ing in the Magdalen Islands, 102.
- Callipepla californica, 230.
californica vallicola, 230.
squamata, 420.
- Calypte anna, 83, 414.
- Cameron, E. S., nesting of the
Great Blue Heron in Montana,
252-262.
- Campophilus imperialis, 426.
- Campylopterus, 79.
- Canvas-back, 140, 444.
- Capercaillie, 477.
- Caprimulgus nuttallii, 308, 309.
- Caracara, Audubon's, 387.
Tres Marias, 387.
- Carbo floridanus, 307, 309.
- Cardinal, 9, 46, 347.
Florida, 400.
Tres Marias, 390.
- Cardinalis, 471.
cardinalis, 46, 275.
cardinalis floridanus, 400.
cardinalis mariae, 390.
- Carduelis, 471.
mexicanus, 310.
- Carduelis stanleyi, 308.
yarrellii, 308.
- Carpenter, Frederic W., an astrono-
mical determination of the heights
of birds during nocturnal migra-
tion, 210-217; notice of his paper
on the 'Development of the Ocu-
lomotor Nerve,' etc., 237.
- Carpodacus mexicanus, 390.
mexicanus frontalis, 416, 422,
465.
purpureus californicus, 145,
415.
- Carine noctua, 346.
- Cassidix melanicterus, 389.
- Cassinia, see Delaware Valley Or-
nithological Club.
- Cat question, the, in Australia, 358.
- Catbird, 160, 277, 279, 280, 282.
- Catharista atrata, 222.
urubu, 45, 386.
- Cathartes atratus, 309.
aura, 45, 142, 221, 309, 385,
399, 413, 420.
jota, 309.
- Catherpes mexicanus conspersus,
424, 465.
- Cedar-bird, 342.
- Celeus elegans leotaudi, 471.
- Centurus carolinus, 45, 399.
elegans, 388.
- Ceophloeus pileatus, 63.
pileatus abieticola, 144.
scapularis, 388.
- Cephus columba, 139, 412.
grylla, 172, 441.
mandtii, 441.
- Ceratorrhina monocerata, 139.
occidentalis, 310.
- Ceratorhyncha occidentalis, 310.
- Certhia familiaris fusca, 160.
familiaris montana, 424.
familiaris occidentalis, 148.
- Certhiola atrata, 394.
godmani, 394.
saccharina, 393, 394.

- Certhiola wellsi*, 395.
Ceryle alcyon, 143, 421.
 cabanisi, 388.
 torquata, 388.
Chachalaca, 385.
Chætura cinereicauda, 471.
 dubia, 236.
 fumosa, 472.
 pelagica, 70, 74, 174.
 spinicauda, 471.
 vauxii, 144, 224.
Chamæa fasciata intermedia, 187, 418.
 fasciata henshawi, 417.
 fasciata rufula, 418.
Charadrius dominicus, 451.
Charitonetta albeola, 140, 445.
Chat, Long-tailed, 147, 390, 403, 417.
 Yellow-breasted, 9, 19, 279.
Chaulelasmus streperus, 140, 444.
Chen caerulescens, 314, 446.
 hyperborea, 219, 314, 453.
 hyperborea nivalis, 220, 314.
Cherrie, Geo. K., notice of his paper on Birds collected at St. Matthews Cocoa Estate, Island of Trinidad, 471.
Chewink, 347.
Chibia worcesteri, 236.
Chickadee, Black-capped, 313, 347.
 Carolina, 47, 277, 344.
 Chestnut-backed, 148.
 Hudsonian, 178, 313.
 Mountain, 424.
 Oregon, 148.
 Santa Cruz, 412, 417.
Chlorophanes spiza exsul, 235.
Chlorospingus leotaudi, 471.
Chondestes grammacus, 46, 103.
 grammacus strigatus, 416, 423.
Chordeiles virginianus, 64, 144, 399.
 virginianus hesperis, 414.
 acutipenis texensis, 388.
Chrysolampis moschitus, 82.
Chuck-will's-widow, 279, 281, 343, 364.
Cinclus americanus, 304, 311.
 mexicanus, 108, 147.
 mortoni, 304, 308, 311.
 schulzi, 111.
 townsendi, 303, 308, 311.
Cinclus, geographical distribution of, 111.
Circus hudsonius, 142, 413, 420.
Cissilopha san-blasiana san-blasiana, 389.
Cistothorus stellaris, 47.
Clangula clangula americana, 140, 173, 445.
 islandica, 445.
 vulgaris, 310.
Clark, Austin H., notice of his "Birds of the Southern Lesser Antilles," 113; the West-Indian black forms of the genus *Cæreba*, 392-395.
Clark, Hubert Lyman, the feather tracts of Swifts and Humming-birds, 68-91.
Clarke, Wm. Eagle, notice of his 'The Birds of the South Orkney Islands,' 350.
Coccyoborus caeruleus, 207.
Coccothraustes vespertinus montanus, 465.
Coccyzus americanus, 14, 22, 300.
 americanus occidentalis, 143.
 erythrophthalmus, 300.
 minor, 399.
 minor vincentis, 114.
 sp., 174.
Cœligena clementiæ, 83.
Cœreba atrata, 392, 393, 394, 395.
 luteola, 394.
 saccharina, 393, 394.
 wellsi, 392, 393, 395.
Cœreba, West Indian black forms of, 392-395.
Colaptes auratus, 45, 232.

- Colaptes cafer collaris*, 144, 414, 421.
 cafer saturator, 144.
Colinus virginianus, 142.
Collocalia, 474.
 spodiopyga, 72.
 sp., 72.
Columba carolinensis, 474.
 fasciata, 142, 420.
 flaviostris, 385.
 flaviostris madrensis, 385.
 leucocephala, 398.
 macroura, 474.
 marginata, 474.
 migratoria, 474.
 trudeauii, 309.
Columbigallina passerina exigua,
 236.
 passerina pallescens, 385.
 passerina terrestris, 399.
Colymbus arcticus, 310.
 auritus, 139, 441.
 glacialis, 367.
 holboëlli, 139, 314, 440.
 richardsoni, 304, 308.
Compsothlypis americana, 157, 465.
 americana usneæ, 174.
 americana ramelinæ, 24.
Condor, California, 408, 409.
Contopus richardsonii, 144, 415.
 virens, 20, 154.
Conurus caniculatus, 388.
Cooke, Wells W., Swallow-tailed
 Flycatcher (*Muscivora forficata*)
 in New Brunswick, 460; the
 Birds of Wyoming: some cor-
 rections, 464.
Coolidge, P. T., notes on the
 Screech Owl, 48-55.
Coot, American, 141, 190, 193, 367,
 383, 413, 448.
 Sea, 314.
Cormorant, 443.
 Baird's, 137, 413.
 Brandt's, 132, 137, 140, 412.
 Double-crested, 274, 443.
Comorant, Farralone, 132, 137.
 Mexican, 382.
 White-crested, 140.
Corvus americanus, 307, 432.
 brachyrhynchos, 45, 109,
 145, 175.
 brachyrhynchos hesperis, 415.
 brachyrhynchos pascuus, 399.
 caccolotl, 319.
 caurinus, 145.
 columbianus, 310.
 corax principalis, 173, 313.
 corax sinuatus, 173, 313,
 415, 422.
 cryptoleucus, 422.
 mexicanus, 389.
 ossifragus, 45.
Cowbird, 8, 9, 145, 277, 422.
 Bronzed, 389.
Cowheen, 445.
Crane, Little Brown, 183.
 Sandhill, 141, 447.
 Whooping, 439.
Creeper, Brown, 10, 160.
 Rocky Mountain, 424.
 Tawny, 148.
Creepers, Black West Indian Honey,
 392-395.
Crossbill, American, 145, 176, 313,
 339.
 White-winged, 176, 339.
Crotophaga ani, 4, 399.
 sulcirostris, 4, 106, 388.
Crow, American, 45, 109, 145, 175.
 California, 415.
 Carrion, 366.
 Fish, 45.
 Florida, 399.
 Mexican, 389.
 Northwest, 145.
 Rain, 399.
Crow Roost, change in location of a,
 429-431.
Crymophilus fulicarius, 106, 220, 448.
Cryptoglaux acadica, 100, 337, 344.

- Cryptoglaux acadica scotæ*, 143.
 Csörgey, Titus, notice of his 'Ornithologische Fragmente aus den Handschriften von Johann Salamon Petényi,' 116.
 Cuckoo, Black-billed, 300.
 California, 143.
 Mangrove, 6, 399.
 Yellow-billed, 9, 22, 279, 282, 300.
Cuculus canorus, 346.
 Curlew, Bristle-thighed, 184.
 Eskimo, 61, 274, 451, 459.
 Hudsonian, 142, 173, 384, 451.
 Long-billed, 59, 453.
 Pink, 397.
 Curruca, 229.
Cyanerpes cærulea trinitatis, 471.
Cyanocephalus cyanocephalus, 422.
Cyanocitta cristata, 45.
 stelleri, 145.
 stelleri annectens, 109.
 stelleri carbonacea, 415.
 stelleri diademata, 422.
Cyanospiza amœna, 146, 417.
 cyanea, 156, 478.
Cygnus passmori, 446.
Cypselus vauxi, 225.
Cypseli, pterylosis of, 70-77, 244.
Cypseloides niger, 71, 75.
 niger borealis, 144.
Cypselus apus, 72, 77.
 vauxii, 224.

 DACNIS protonotarius, 300.
Dafila acuta, 140, 413, 444.
 Darter, 367.
 Dawson, W. Leon, *Chatura vauxi*: a correction, 224; announcement of his work 'The Birds of Washington,' 359.
 Deane, Ruthven, a northern record for the Swallow-tailed Kite (*Elanoides forficatus*) in Wisconsin, 100; another large flight of Snowy Owls, 100; unpublished letters of John James Audubon and Spencer F. Baird, 194-209, 318-334; Great Gray Owl (*Scotiaptex cinerea*) in Minnesota, 222; unusual abundance of the Snowy Owl, 283-298.
 Delaware Valley Ornithological Club, review of Proceedings of, 242.
Dendragopus canadensis, 313.
 obscurus fuliginosus, 142.
Dendrexetastes devillei, 482.
Dendrocicla, 114.
 anabatina, 114.
 merula, 481.
 olivacea lafresnayei, 481.
Dendrocygna autumnalis, 218.
 fulva, 218.
Dendroica æstiva, 17, 22, 24, 147.
 æstiva brewsteri, 417.
 æstiva sonorana, 424.
 auduboni, 147, 230, 390, 424, 465.
 auduboni nigrifrons, 230.
 blackburniæ, 24, 158.
 cærulescens, 22, 24.
 castanea, 20, 24, 157, 174.
 cerulea, 24.
 coronata, 15, 23, 24, 46, 147, 157.
 discolor, 105.
 dominica, 158.
 maculosa, 24, 157.
 nigrescens, 147, 424.
 occidentalis, 147.
 palmarum, 15, 23, 24, 158, 345.
 palmarum hypochrysea, 46, 158.
 pennsylvanica, 17, 24, 157.
 striata, 20, 23, 24, 157.
 tigrina, 105.
 townsendi, 147.

- Dendroica vigorsii*, 15, 46, 273, 275.
 virens, 15, 17, 24, 158.
Dendromanes, 114.
Dendroornis dorbignyana, 482.
 obsoleta multiguttata, 482.
 rostrispallens, 483.
 weddellii, 482.
Dickcissel, 9.
Diomedea fusca, 307.
 nigripes, 308.
Dipper, American, 108, 147.
Dippers, geographical distribution
 of, 111.
Dolichonyx oryzivorus, 461.
Dove, 399.
 Florida, 399.
 Mexican Ground, 385.
 Mourning, 13, 45, 142, 336,
 385, 399, 413, 420, 474.
 Tobacco, 399.
 White-winged, 6, 385.
Dovekie, 314, 441.
Dowitcher, 7, 449.
 Long-billed, 141, 449.
Dryobates borealis, 14, 45, 62.
 maynardi, 163, 169.
 maynardi piger, 169.
 pubescens, 45, 101.
 pubescens gairdneri, 143.
 pubescens turati, 414.
 scalaris bairdi, 421.
 scalaris graysoni, 388.
 villosus, 164-171, 266.
 villosus auduboni, 45, 163,
 167, 171.
 villosus harrisi, 143, 163,
 168, 171, 266.
 villosus hyloscopus, 167, 171,
 266, 414, 421.
 villosus intermedius, 163,
 169, 266.
 villosus jardini, 168, 266.
 villosus leucomelas, 163, 166,
 171, 265.
 villosus monticola, 163, 168,
 171.
Dryobates villosus piger, 163, 169.
Duck, American Scaup, 140.
 Autumnal Tree, 218.
 Black, 154, 218, 315, 332,
 444.
 Canvas-back, 140.
 Fulvous Tree, 218.
 Harlequin, 140, 445.
 Lesser Scaup, 140, 383, 445.
 Long-tailed, 7, 314.
 Masked, 335.
 Old-squaw, 140.
 Pintail, 7, 140, 413.
 Redhead, 140.
 Red-legged Black, 56, 444.
 Ring-necked, 140, 332, 445.
 Ruddy, 332, 446.
 Scaup, 203, 445.
 South-southerly, 332.
 Summer, 332.
 Wood, 140, 444.
Dunlin, American, 273.
Dwight, Jonathan, Jr., status and
 plumages of the White-winged
 Gulls of the genus *Larus*, 26-43;
 first capture of Townsend's Soli-
 taire (*Myadestes townsendi*) on
 Long Island, N. Y., 105;
Dyche, L. L., the Red Phalarope
 (*Crymophilus fulicarius*), a new
 bird for the Kansas list, 220.
Dyke, Arthur C., nest of Saw-whet
 Owl at Bridgewater, Mass., 237.
Dysithamnus affinis andrei, 471.
EAGLE, Bald, 222.
 Golden, 62, 142, 258, 314,
 420.
 Northern Bald, 143.
Ectopistes macroura, 475.
 migratorius, 61, 273.
Edolisoma elusum, 236.
Egret, American, 383, 447, 457.
 Reddish, 7.
Egretta candidissima, 14.
Eider, American, 314, 453.

- Eider, King, 445.
Pacific, 140.
- Eifrig, C. W. G., notes on some
northern birds, 313-318.
- Elainea obscura, 481.
- Elanoides forficatus, 62, 100.
- Elanus leucurus, 14.
- Emberiza americana, 310.
bairdii, 309.
graminea, 311.
henslowii, 307.
lecontei, 309.
ornata, 310.
pallida, 312.
shattuckii, 309.
townsendii, 112, 307.
(Zonotrichia) gracilis, 474.
- Empidonax acadicus, 195.
difficilis, 144.
flaviventris, 195.
hammondi, 144.
minimus, 174, 195.
traillii, 144.
traillii alnorum, 195, 235.
virescens, 154, 195.
wrightii, 421.
- Ereunetes mauri, 98.
occidentalis, 58, 97, 141,
384, 450.
pusillus, 59, 449.
- Erismatura jamaicensis, 446.
- Erithacus, 229.
- Erolia ferruginea, 449.
- Estabrook, A. H., the English
Sparrow Problem, 246.
- Eucephala cæruleo-larvata, 80.
- Eugenes fulgens, 82.
- Euphagus carolinus, 45, 317.
cyanocephalus, 145, 415,
422.
- Eustis, R. S., nesting of the Junco
in eastern Massachusetts, 103.
- FALCO bachmanii, 308.
columbarius, 143, 304, 386.
columbarius suckleyi, 143.
- Falco feldiggi, 117.
harlani, 307.
hyemalis, 304.
islandicus, 304, 309.
labradora, 303, 304, 307, 309.
lagopus, 310.
lineatus, 304.
peregrinus anatum, 99, 143,
341.
richardsoni, 420.
sacer, 117.
sparverius, 45, 387.
sparverius phalcena, 143, 414,
420.
stanleyi, 306, 309.
temerarius, 304, 307.
washingtonii, 306.
- Falcon, Peregrine, 258.
- Fatio, Victor, announcement of
death of, 356; obituary of, 484.
- Finch, Bachman's, 227, 341.
Brown, 311.
California Purple, 145, 415.
House, 390, 407, 416, 422.
Pine, see Siskin.
Purple, 10, 468.
Townsend's, 300.
- Fisher, Walter K., a suggestion,
245.
- Flamingo, American, 397.
- Fleming, James H., an Arctic
record for the American White
Pelican, 218; Chuck-will's widow
and Mockingbird in Ontario,
343; Birds of Toronto, Ontario,
Part 1, Water Birds, 437-453.
- Flicker, Golden-winged, 45, 232,
347.
Northwestern, 144.
Red-shafted, 144, 403, 409,
414, 421.
- Florida cærulea, 14, 57, 398.
- Florisuga mellivora, 69, 79.
- Flycatcher, Alder, 235.
Ash-throated, 144, 414, 421.

- Flycatcher, Beardless, 460.
 Crested, 9, 13, 278.
 Derby, 389.
 Green-crested, 13, 154, 278.
 Hammond's, 144.
 Lawrence's, 389.
 Least, 281, 468.
 Little Tyrant, 198, 199.
 Olivaceous, 389.
 Olive-sided, 144, 316.
 Small-headed, 312.
 Swallow-tailed, 14, 460.
 Traill's, 144, 281, 321.
 Vermilion, 422.
 Western, 144.
 Wright's, 421.
 Yellow-bellied, 196, 206, 208.
- Fowler, Henry W., birds observed in the Florida Keys, 396-400.
- Fregata aquila, 382, 397.
- Frinca townsendi, 303, 307, 310.
- Fringilla americana, 310.
 bachmani, 307.
 borealis, 310.
 chlorura, 308.
 cinerea, 308.
 cerulea, 309.
 corulea, 309.
 frontalis, 310.
 grammaca, 312.
 harrisi, 309.
 iliaca, 312.
 laponica, 310.
 lapponica, 310.
 leucophrys, 207.
 lincolnii, 307.
 macgillivrayi, 308.
 maculata, 303, 307, 310.
 melanocephala, 310.
 mexicana, 310.
 mortoni, 308.
 psaltria, 310.
 spaltria, 310.
 tephrocotis, 310.
- Fringilla townsendi, 310, 312.
- Fulica americana, 14, 141, 193, 383, 413, 448.
- Fuligula clangula, 310.
 dispar, 310.
 glacialis, 207.
 marila, 320.
 rufitorques, 320.
 stelleri, 310.
- GADWALL, 140, 444.
- Galeoscoptes carolinensis, 160.
- Gallinago delicata, 14, 141, 448.
- Gallinula galeata, 14, 189-194, 413, 448.
- Gallinule, Cinereous, 367.
 Florida, 189-194, 413, 448.
 Purple, 367, 448.
- Gannet, 173, 274, 443.
- Gauldin, 398.
- Gavia adamsi, 304.
 arctica, 452.
 imber, 139, 441.
 lumme, 139, 314, 441.
- Geococcyx californianus, 414, 421.
- Geothlypis philadelphia, 22, 24.
 trichas, 275.
 trichas arizela, 147, 417.
 trichas brachidactyla, 18, 20, 23, 24, 345.
 trichas ignota, 46, 227.
 trichas occidentalis, 424.
 tolmiei, 147.
- Geotrygon linearis, 472.
 venezuelensis, 472.
- Glaucidium gnoma californicum, 143.
 phalaenoides, 387, 478.
 phalaenoides ridgwayi, 478.
- Gnatcatcher, Blue-gray, 6, 160, 278.
 Western, 425.
- Godwit, Hudsonian, 335, 450.
 Marbled, 59, 450.
- Golden-eye, American, 140, 332, 445.

- Golden-eye, Barrow's, 445.
 Goldfinch, American, 46, 155, 282.
 Green-backed, 187, 416.
 Lawrence, 407, 416.
 Willow, 145, 187, 416.
 Goose, American White-fronted, 141, 453.
 Blue, 446.
 Blue Snow, 314.
 Canada, 446.
 Hutchins's, 141, 446.
 Lesser Snow, 219, 453.
 Snow, 314.
 White-cheeked, 141.
 Gooseander, 332.
 Goshawk, American, 100, 314.
 Mexican, 386.
 Western, 142.
 Grackle, Boat-tailed, 46, 400.
 Bronzed, 433.
 Florida, 9, 46.
 Purple, 300.
 Rusty, 45.
 Grebe, Eared, 312.
 Holbell's, 139, 314, 440.
 Horned, 139, 441.
 Pied-billed, 45, 56, 139.
 Western, 139.
 Grinnell, Joseph, the status of the
 "San Francisco Titmouse," 186-
 188; questionable records, 229;
 the Catalina Island Quail, 262-
 265.
 Grosbeak, Black-headed, 146, 409,
 423.
 Blue, 203.
 California Black-headed, 417.
 Pine, 173.
 Rose-breasted, 22, 279, 280.
 Western Blue, 390, 404, 417.
 Western Evening, 145, 422.
 Grouse, Oregon Ruffed, 142.
 Ruffed, 241, 236.
 Sharp-tailed, 313.
 Sooty, 142.
 Grus mexicana, 141, 447.
 Guacamayo, 427.
 Guara alba, 14, 383, 397.
 Guillemot, Black, 172, 441.
 Pigeon, 139, 412.
 Guiraca caerulea lazula, 390, 417.
 Gull, Black-headed, 396.
 Bonaparte's, 130, 131, 139,
 442.
 Burgomaster, 26.
 California, 139, 183.
 Franklin's, 452.
 Glaucous, 26, 30-34, 315,
 442.
 Glaucous-winged, 26, 35, 130,
 131, 139.
 Great Black-backed, 172,
 442.
 Herring, 45, 110, 131, 314,
 442.
 Heermann's, 131, 133, 139,
 369, 372, 375, 377, 412.
 Iceland, 26, 34, 442.
 Ivory, 442.
 Kumlien, 26, 36-41.
 Laughing, 45, 442, 454.
 Nelson's, 26, 41.
 Point Barrow, 26.
 Ring-billed, 45, 131, 172, 442.
 Rosy, 348.
 Sabine, 452.
 Short-billed, 130, 131, 139.
 Western, 130, 131, 134-136,
 139, 369, 372, 377, 412.
 White-winged, 26-43.
 Gullie, 396.
 Gymnogyps californianus, 413.
 Gyrfalcon, 182.
 HÆMATOPUS bachmani, 310.
 frazari, 384.
 ostralegus, 309.
 palliatu, 58, 309.
 townsendi, 310.
 Haliaetus leucocephalus, 14, 222.

- Haliaeetus leucocephalus alascanus*, 143.
- Hantzsch, Bernhard, notice of his 'Beitrag zur Kenntniss der Vogelwelt Islands,' 115.
- Haplospiza montosa*, 236.
- Harelda hyemalis*, 140, 173, 314, 445.
- Hartert, Ernst, On the Criticism of Heft III of 'Die Vögel der paläarktischen Fauna,' 120-122.
- Harvie-Brown, J. A., notice of his 'Travels of a Naturalist in Northern Europe,' 117.
- Hathaway, Harry S., the Water-Thrush (*Seiurus noveboracensis*) nesting in Rhode Island, 463.
- Hawk, American Sparrow, 45 387.
- Broad-winged, 173.
- Cooper's, 142, 173, 413, 420.
- Desert Sparrow, 143, 409, 414, 420.
- Duck, 99, 143, 341.
- Ferruginous Rough-legged, 420.
- Fish, 399.
- Florida Red-shouldered, 399.
- Fowl, 399.
- Man-o'-War, 397.
- Marsh, 142, 182, 413, 420.
- Mexican Black, 386.
- Pigeon, 143, 386.
- Red-shouldered, 173.
- Red-tailed, 23, 45.
- Rough-legged, 182, 314.
- Sharp-shinned, 142, 173, 344, 420.
- Swainson's, 414.
- Western Red-tailed, 142, 405, 414, 420.
- Heleodytes brunneicapillus couesi*, 424.
- Helinaia peregrina*, 206.
- rubricapilla*, 206.
- solitaria*, 206.
- swainsoni*, 156, 227.
- Hellmayr, C. E., notice of his 'Birds of the Island of Trinidad,' 470.
- See also Ménégau, A.
- Helminthophaga lawrencei*, 112.
- leucobronchialis*, 112.
- Helminthophila bachmani*, 227.
- celata*, 46, 157, 344, 424.
- celata lutescens*, 147, 465.
- chrysoptera*, 24, 104.
- lawrencei*, 112, 345.
- leucobronchialis*, 112.
- peregrina*, 22, 24, 157.
- pinus*, 16, 104, 344, 345.
- rubricapilla*, 22.
- rubricapilla gutturalis*, 147.
- virginia*, 424, 465.
- Helmitherus vermivorus*, 157.
- Helodromas solitarius*, 316, 450.
- Hemiprocne acuta*, 75.
- collaris*, 75.
- zonaris*, 74.
- Hen, Heath, 241.
- Mud, 398.
- Prairie, 237, 241.
- Herodias egretta*, 14, 383, 447, 457.
- Heron, Anthony's Green, 413.
- Big White, 397.
- Black-crowned Night, 57, 277, 447.
- Blue, 397.
- European Blue, 260.
- Great Blue, 45, 108, 252-262, 375, 383, 398, 413, 419, 447.
- Green, 7, 57, 398, 432-436, 447.
- Little Blue, 7, 57, 277, 398.
- Louisiana, 7, 57, 398.
- Northwest Coast, 141.
- Snowy, 7.
- White, 397.
- Yellow-crowned Night, 7, 57, 220, 398, 447, 457.
- Hesperiphona vespertina montana*, 145, 422.
- Heterocnemis*, 471.

- Heteropoda cabanisi*, 97.
 mauri, 97.
 minor, 97.
 semipalmata, 97.
Himantopus mexicanus, 57, 346, 413.
Hirundo americana, 309.
 erythrogastra, 146, 156, 423.
 erythrogastra palmeri, 417.
 purpurea, 311.
 rustica, 309.
 serripennis, 308.
 thalassina, 310.
Histrionicus histrionicus, 140, 445.
Hœmatopus bachmani, 307, 310.
 townsendi, 307, 310.
Holmes, La Rue K., obituary of, 356.
Hopkins, F. H., the Bobolink in Colorado, 461.
Houghton, C. O., the Masked Duck in Maryland, 235.
Howell, Arthur H., notice of his 'Birds that eat the Cotton Boll Weevil,' 475.
Hummer, see Hummingbird.
Hummingbird, Allen's, 144, 414.
 Anna, 414.
 Broad-tailed, 109.
 Calliope, 144.
 Grayson's, 388.
 Lawrence's, 389.
 Ruby-throated, 278, 282.
 Rufous, 144.
Hummingbirds, feather tracts of, 77-91, 243.
Hunn, John T. Sharpless, notes on birds of Silver City, New Mexico, 418-425.
Hunt, Chreswell J., change of location of a Crow roost, 429-431.
Hydranassa tricolor ruficollis, 14, 57, 398.
 tricolor rufimentum, 471.
Hydrochelidon surinamensis, 412.
 nigra surinamensis, 443.
Hylocichla aonalaschkæ pallasii, 47.
 aonalaschkæ slevini, 418.
 fuscescens, 160.
 fuscescens salicicola, 345.
 guttata auduboni, 425.
 guttata nana, 148.
 guttata pallasii, 160, 174.
 ustulatus, 148, 418.
IACHE *lawrencei*, 389.
 magica, 478.
Ibis, Brown, 397.
 Glossy, 453.
 Scarlet, 6.
 White, 383, 397.
 White-faced Glossy, 383, 413.
 Wood, 56.
Icteria virens, 19.
 virens longicauda, 147, 390, 417.
Icterus abeillei, 478.
 baltimore, 311.
 bullocki, 145, 415, 422.
 cucullatus nelsoni, 415, 422.
 gaulanensis, 235.
 giraudi, 235.
 graysoni, 390.
 parisorum, 422.
 pustulatus, 390.
Ictinia mississippiensis, 14, 61.
Indigo-bird, 468.
Ionornis martinica, 14, 56, 448.
Iridoprogne bicolor, 146.
 bicolor vespertina, 417.
Ixoreus naevius, 148.
JAÇANA, Mexican, 384.
Jacana spinosa, 384.
Jaeger, Long-tailed, 452.
 Parasitic, 131, 139, 184, 441.
 Pomarine, 452.
Jay, Arizona, 422.
 Belding's, 415.
 Black-headed, 109.

- Jay, Blue, 45, 347.
 California, 409, 415.
 Canada, 313, 316.
 Coast, 412, 415.
 Florida Blue, 6.
 Labrador, 313.
 Long-crested, 422.
 Oregon, 145.
 Piñon, 422.
 San Blas, 389.
 Steller's, 145.
 Woodhouse's, 422.
- Jenkins, Hubert O., variation in the
 Hairy Woodpecker (*Dryobates vil-*
 losus and subspecies), 161-171.
- Judd, Sylvester D., notice of his
 'The Bobwhite and other Quails
 of the United States in their
 Economic Relations,' 119, 241.
- Junco caniceps, 423.
 hyemalis, 103, 465.
 hyemalis connectens, 423.
 hyemalis oregonus, 146.
 hyemalis pinosus, 416.
 hyemalis shufeldti, 146.
 mearnsi, 423.
- Junco, Gray-headed, 423.
 Oregon, 146.
 Pink-sided, 423.
 Point Pinos, 412, 416.
 Shufeldt's, 146, 423.
 Slate-colored, 103, 251, 347.
- KEYS, Charles R., prolific Duck
 Hawks, 99.
- Kicker, 457.
- Killdeer, 7, 45, 142, 413, 420, 451.
- Killing-peter, 396.
- Kingbird, 8, 13, 67, 144, 278, 281,
 282.
 Arkansas, 144, 389, 414, 421.
 Cassin's, 421.
 Couch's, 389.
 Gray, 399.
- Kingfisher, Belted, 143, 414, 421.
 Great Rufous-bellied, 388.
- Kingfisher, Texan, 388.
- Kinglet, Golden-crested, 327.
 Golden-crowned, 23, 47, 278,
 282, 345.
 Ruby-crowned, 47, 278, 279,
 282, 425.
 Sitka Ruby-crowned, 148.
 Western Golden-crowned,
 148.
- Kite, Fork-tailed, 281.
 Mississippi, 61, 281, 312.
 Swallow-tailed, 100.
- Kittiwake, 314, 442.
 Pacific, 130, 131.
- Klugh, N. B., a third record for the
 Prairie Warbler in Canada, 105;
 the Carolina Wren a summer
 resident of Ontario, 105.
- Knot, 141, 449.
- Krause, George, his 'Oologia uni-
 versalis palæarctica,' announced,
 128.
- LAGOPUS americanus, 308.
 lagopus, 313.
 rupestris, 313.
- Lampornis violicauda, 81.
- Lanio lawrenci, 471.
- Lanius borealis, 146, 313.
 excubitor, 309.
 ludovicianus, 15, 46.
 ludovicianus excubitorides,
 423.
 ludovicianus gambeli, 417.
 septentrionalis, 309.
- Lapwing, European, 221.
- Lark, Brown, 300.
 Horned, 120, 241, 314.
 Hoyt's Horned, 345.
 Mexican Horned, 403, 406, .
 415.
 Prairie Horned, 101, 225,
 461.
 Shore, 314.
 Streaked Horned, 145.
- Larus arcticus, 28.

- Larus argentatus*, 45, 314, 442.
atricilla, 14, 45, 396, 442, 454.
barrovianus, 26, 28.
brachyrhynchus, 139.
californicus, 139.
candidus, 35.
canus, 309.
chalcopterus, 41.
delawarensis, 45, 172, 442.
franklinii, 452.
glacialis, 35, 315.
glaucescens, 26, 28, 35.
glaucus, 26, 28, 30-34, 442.
heermanni, 139, 337, 412.
hutchinsii, 30.
kumlieni, 26, 28, 36.
leucopterus, 26, 28, 34, 442.
marinus, 173, 442.
nelsoni, 26, 28, 41.
occidentalis, 139, 308, 337, 412.
philadelphia, 139, 442.
zonorhynchus, 309.
Leptasthenura montivagans, 236.
Lestris parasitica, 310.
parasiticus, 310.
pomarina, 309.
pomarinus, 309.
Leucochloris albicollis, 82.
Leucosticte tephrocotis, 465.
 Leverkus, Paul, obituary of, 247.
Limosa fedoa, 59, 450.
hæmastica, 335, 450.
 Limpkin, 231.
Linaria pinus, 207.
tephrocotis, 310.
Linota borealis, 310.
Longspur, Chestnut-collared, 422.
 Lapland, 184, 314.
Loon, 139, 314, 368, 441.
 Black-throated, 452.
 Red-throated, 139, 314, 441.
Lophodytes cucullatus, 140, 444.
Lophortyx californica vallicola, 263, 413.
 californicus, 142, 413.
Lophortyx catalinensis, 262.
 douglasi, 384.
 gambeli, 420.
 Louis d'Or, 394.
Loxia curvirostra minor, 145, 176, 313, 339.
 leucoptera, 174, 339.
 mexicana, 474.
 Lucas, F. A., the speed of birds, 480.
Luscinia, 228.
 aëdon, 229.
 megarhynchos, 228.
 MACROPTERYX *coronata*, 72.
Macrorhamphus griseus, 59, 60, 449.
 scolopaceus, 59, 141, 449.
 Magpie, American, 145, 439.
 Maine Ornithological Society, 487.
 Mallard, 140, 219, 327, 332, 444.
Mareca americana, 140, 444.
 Marshall, Margeret E., notice of her paper on the anatomy of *Phalænoptilus*, 237.
 Martin, Purple, 46, 109, 146, 277, 423.
 Western, 417.
 McAtee, W. L., notice of his 'The Horned Larks in their Relation to Agriculture,' 120, 241; notice of his 'Ecological Notes on Birds occurring within a radius of five miles of the Indiana University Campus,' 237; the shedding of the stomach lining by birds, 346; Virginia creeper as a winter food for birds, 346.
 McGregor, Richard C., notice of papers by on Philippine birds, 235.
 McGregor, Richard C., and Dean C. Worcester, notice of their 'Hand-List of the Birds of the Philippine Islands,' 472.
 McKechnie, F. B., a late spring record for the Yellow Rail (*Por-*

- zana noveboracensis*) in Massachusetts, with remarks on the 'ornithological mystery,' 457.
- Meadowlark, 13.
Southern, 6, 8, 155.
Western, 145, 415, 422.
- Meeker, Jesse C. A., a male Golden-winged Warbler (*Helminthophila chrysoptera*) mated with a female Blue-winged Warbler (*H. pinus*) at Bethel, Conn., 104.
- Megaquiscalus major, 46.
major obscurus, 390
- Megascops asio, 48-55, 316.
asio bendirei, 414.
asio cineraceus, 421.
asio kennicottii, 143.
- Melanerpes erythrocephalus, 14, 45.
formicivorus, 421.
formicivorus bairdi, 414.
- Meleagris gallopavo, 300.
- Mellisuga minima, 84.
- Melopelia leucoptera, 385.
- Melospiza cinerea cooperi, 416.
cinerea heermanni, 416.
cinerea melodia, 156.
cinerea morphna, 146.
cinerea sanctæcrucis, 416.
georgiana, 156, 174.
lincolni, 174, 423.
lincolni striata, 474.
- Ménégaux, A., and C. E. Hellmayr, notice of their studies of the Passeres Tracheophones of the Paris Museum, 351-353; the supposed types in the Lafresnaye Collection, 480-483.
- Merganser americanus, 140, 418, 443.
serrator, 140, 443.
- Merganser, American, 140, 443.
Hooded, 140, 332, 444.
Red-breasted, 140, 443.
- Mergullus antiquus, 310.
- Mergus cucullatus, 311.
- Merlin, Black, 143.
- Merlin, Richardson's, 420.
- Merriam, C. Hart, notice of his 1905 report as Chief of the Biological Survey, 248.
- Merula migratoria, 15, 47, 148, 229, 314, 342.
migratoria propinqua, 148, 425.
- Michigan Ornithological Club, annual meeting of, 347.
- Micropalama himantopus, 449.
- Microptera americana, 308.
- Micropus æquatorialis, 77.
caffer streubeli, 77.
melba, 77.
- Miller, W. DeW., occurrence of *Progne chalybea* in Texas, 226; breeding of the Savanna Sparrow (*Passerculus sandwichensis savanna*) in southern New Jersey, 340; notice of his papers on Birds collected in Southern Sinaloa, and in Durango, 478.
- Mimus polyglottos, 46, 344, 400.
polyglottos leucopterus, 390, 417, 424.
- Mionectes oleagineus pallidiventris, 471.
- Mniotilta varia, 16, 24, 156.
- Mocker, 400.
- Mockingbird, 46, 277, 344, 400.
Western, 390, 403, 408, 417.
- Molothrus ater, 145, 422.
- Momotus mexicanus, 388.
- Morris, Robert O., the Rough-winged Swallow and Duck Hawk near Springfield, Mass., 341; the Rough-winged Swallow (*Stelgidopteryx serripennis*) nesting near Springfield, Mass., 463.
- Motacilla curruca, 229.
rubecula, 229.
sibillatrix, 229.
- Motmot, Rufous-crowned, 388.
- Murre, 452.
Brünnich's, 314, 441.

- Murre, California, 139, 377, 412.
 Murrelet, Marbled, 139.
 Muscicapa acadica, 206.
 bonapartii, 306.
 canadensis, 309.
 cooperi, 309.
 dominicensis, 309, 311.
 gilva, 309.
 inornata, 309.
 leibii, 206.
 mitrata, 304.
 nigricans, 311.
 olivacea, 481.
 phoebe, 311.
 pusilla, 198, 199, 206, 309,
 311, 321.
 richardsonii, 311.
 selbii, 304, 306.
 sp., 203, 305.
 traillii, 207, 306.
 wilsonii, 309.
 Muscivora boliviana, 481.
 Muscivora forficata, 460.
 Myiadestes townsendi, 105, 148, 425.
 Myiarchus cinerascens, 144, 414,
 421, 465.
 crinitus, 465.
 lawrencei, 389.
 lawrencei olivascens, 389.
 Myiodiocetes canadensis, 206.
 wilsonii, 206.

 NASH, C. W., notice of his 'Check
 List of the Birds of Ontario,'
 353.
 Nasica guttatoides, 352, 481.
 National Association of Audubon
 Societies, first annual meeting
 of, 126; bequest to, 486.
 Nettion carolinensis, 140, 383, 419,
 444.
 Newton, Alfred, notice of his 'Oo-
 theca Wooleyana,' 118.
 Nighthawk, 8, 13, 64, 144, 279,
 282, 399.
 Pacific, 414.
 Nighthawk, Texas, 388.
 Nightingale, 228.
 Nomonyx dominicus, 335.
 Norton, Arthur H., the eastern
 distribution of the Prairie
 Horned Lark; a question of
 evidence, 225; occurrence of the
 Titlark (*Anthus pensilvanicus* in
 Maine, in spring, 341; a second
 Yellow-crowned Night Heron
 (*Nycticorax violacea*) at Port-
 lande, Me., 457.
 Nucifraga columbiana, 310.
 Numenius borealis, 61, 274, 451,
 459.
 hudsonicus, 59, 142, 173, 384,
 451.
 longirostris, 59, 60, 453.
 Nuthatch, Brown-headed, 47.
 Pigmy, 417, 424.
 Red-breasted, 148.
 Slender-billed, 148, 424.
 White-breasted, 47, 345, 347.
 Nuttallornis borealis, 144, 316.
 Nyctala tengmalmi richardsoni, 222.
 Nyctanassa violacea, 57, 398, 447.
 Nyctea nivea, 100.
 nyctea, 143, 271-273, 283-
 298.
 Nycticorax nycticorax naevius, 14,
 57, 447.
 violaceus, 220, 457.

 OBERHOLSER, Harry C., notice of
 his 'A Monograph of the Genus
 Dendrocincla Gray,' 114; the
 proper generic name for the
 Nightingale, 228; notice of his
 'A Monograph of the Genus
 Collocalia,' 473; notice of papers
 by, on 'An earlier Name for
 Melospiza lincolni striata,' 'the
 Specific Name of the Hawk Owls,'
 and '*Piranga erythromelas* versus
 Piranga mexicana,' 474.
 Oceanites oceanicus, 350.

- Oceanodroma castro*, 274.
 cryptoleuca, 274.
 leucorhoa, 97, 173.
 macroactyla, 185.
 melania, 185, 378.
 monorhis chapmani, 185.
 socorroensis, 185.
Ochthodromus wilsonius, 58, 398,
 453.
Oestrelata gularis, 217.
Oidemia americana, 141, 230, 445.
 deglandi, 141, 173, 446.
 perspicillata, 141, 314, 446.
Olbiorechilus hiemalis pacificus, 148.
Oldsquaw, 140, 445, 478.
Oldys, Henry, see Palmer, T. S.
Olor buccinator, 446.
 columbianus, 141, 446.
Oporornis formosa, 158, 345.
Oreortyx pictus, 142, 245.
 pictus plumiferus, 245.
Oreospiza chlorura, 423.
Oriole, Arizona Hooded, 408, 415,
 422.
 Baltimore, 279.
 Bullock's, 145, 402, 407, 415,
 422.
 European Golden, 353.
 Grayson's, 390.
 Orchard, 8, 278, 279, 281.
 Red, 400, 408.
 Scarlet-headed, 390.
 Scott's, 422.
Oriolus galbula, 353.
Ornithion imberbe, 460.
Oroscoptes montanus, 424.
Ortalis vetula macalli, 385.
Orthorhynchus exilis, 85.
Osgood, Fletcher, the Towhee nest-
 ing in bushes, 462; a Robin's
 nest without mud, 464.
Osprey, American, 143, 399.
Otocoris alpestris, 314.
 alpestris actia, 415.
 alpestris hoyti, 345.
 alpestris occidentalis, 422.
Otocoris alpestris praticola, 101, 225,
 461.
 alpestris strigata, 145.
Oustalet, Emile, obituary of, 355.
Ovenbird, 18, 24, 158, 279.
Owl, American Barn, 337.
 American Hawk, 108.
 American Long-eared, 421.
 Arctic Horned, 469.
 Barn, 420.
 Barred, 23, 45.
 Burrowing, 143, 414, 421.
 California Pygmy, 143.
 California Screech, 414.
 Dusky Horned, 143.
 European Hawk, 474.
 Great Gray, 222, 316.
 Hawk, 184, 474.
 Horned, 387.
 Kennicott's Screech, 143.
 Long-eared, 143, 203, 335.
 Mexican Screech, 421.
 Northern Spotted, 143.
 Northwest Screech, 143.
 Pygmy, 387.
 Richardson's, 180, 222.
 Saw-whet, 337.
 Screech, 48-55, 387.
 Short-eared, 143, 203.
 Snowy, 100, 143, 180, 271-
 273, 283-298.
 Western Horned, 421.
Oxyechus vociferus, 45, 142, 413,
 420, 451.
Oyster-catcher, Frazar's, 384.

PACHYRAMPHUS niger cinereiven-
 tris, 472.
Pachysylvia aurantiifrons saturata,
 471.
Pagophila alba, 442.
Palmer, T. S., additional American
 records of the Ruff, 98; notice
 of his 'Federal Game Protection
 — a five years' Retrospect,' 475;

- notice of his 'Game Protection in 1905,' 477.
- Palmer, T. S., Henry Oldys and R. W. Williams, Jr., notice of their 'Game Laws for 1905,' 242.
- Pandion haliaëtus carolinensis*, 14, 143, 399.
- Paroquet, Carolina, 237.
- Parrakeet, Red-and-Blue-headed, 388.
- Parrot, Double Yellow-headed, 387.
Finsch's, 387.
Thick-billed, 223, 425-428.
White-fronted, 387.
- Partridge, California, 142, 230, 413.
Gambel's, 420.
Gray, 477.
Mountain, 142.
Scaled, 420.
Valley, 413.
- Parus atricapillus*, 309, 313.
atricapillus occidentalis, 148.
carolinensis, 47, 308, 309.
cinctus alascensis, 181.
dejeani, 121.
gambeli, 424.
hudsonicus, 178, 313.
hypermelæna, 121.
palustris, 121.
rufescens, 148.
rufescens barlowi, 417.
rufescens neglectus, 245.
sclateri, 121.
- Passer domesticus*, 145, 173, 246, 416, 422.
- Passerculus princeps*, 65, 230.
rostratus, 149-152.
rostratus sanctorum, 150.
sandwichensis alaudinus, 145.
sandwichensis savanna, 46, 155, 340.
- Passerella iliaca*, 173.
iliaca unalaschensis, 146.
- Passerina nivalis*, 102, 145.
- Pastor roseus*, 346.
- Patagona gigas*, 69, 80.
- Pavoncella pugnax*, 98, 459.
- Peabody, P. B., his 'Nesting Ways of North American Birds' announced, 359.
- Pediocetes phasianellus*, 313.
- Pelecanus americanus*, 310.
californicus, 382.
erythrorhynchos, 14, 140, 218, 413, 453.
fuscus, 310, 396.
occidentalis, 453.
- Pelican, American White, 140, 402, 413, 453.
Brown, 396, 453.
California Brown, 132, 137, 369, 382, 413.
White, 218.
- Pelicanus americanus*, 307, 310.
- Pelidna alpina pacifica*, 273.
alpina sakhalina, 59, 141, 449.
- Penguin, Ringed, 350.
- Penthestes carolinensis*, 342.
- Perisoreus canadensis*, 316.
canadensis nigricapillus, 313.
obscurus, 145.
- Petényi, Johann Salamon, see Csörgey, T.
- Petrel, Black, 375-378.
Black-capped, 443.
Cape, 350.
Hawaiian, 274.
Leach's, 97, 173.
Peale's, 217.
Snowy, 350.
Wilson's, 173, 350.
- Petrochelidon lunifrons*, 146, 417, 423.
lunifrons tachina, 479.
- Peucea æstivalis*, 15.
æstivalis bachmani, 228, 341.
lincolni, 207.
- Pewee, Western Wood, 415.
Wood, 9, 20, 154, 278, 281, 282.
- Phaëthon æthereus*, 378.

- Phainopepla, 409, 417.
 Phainopepla nitens, 417.
 Phalaerocorax carbo, 443.
 dilophus, 274, 443.
 dilophus cinctatus, 140.
 floridana, 311.
 leuconota, 308.
 leucurus, 308.
 mexicanus, 14, 382.
 pelagicus resplendens, 413.
 penicillatus, 140, 412.
 resplendens, 307.
 townsendi, 307.
 Phalænoptilus nuttalli nitidus, 237.
 Phalarope, Northern, 141, 173, 448.
 Red, 106, 220, 448.
 Wilson's, 335, 344, 413, 448.
 Phalaropus fulicarius, 310.
 lobatus, 141, 173, 448.
 platyrhynchus, 310.
 Phalaris cristatella, 310.
 superciliaris, 310.
 superciliata, 310.
 Phasianus americanus, 308.
 sp., 142.
 Pheasant, Mongolian, 142.
 Pheugopedius felix, 391.
 Pheuticus uropygialis meridensis,
 236.
 Philohela minor, 14, 59, 174, 448.
 Philomela, 229.
 Phœbe, 45, 154, 279, 282.
 Black, 401, 415, 421.
 Say's, 144, 421.
 Phyllomyias brevirostris, 481.
 Piaya cayana insulana, 471.
 Pica pica hudsonica, 145.
 Picoides arcticus, 174, 316.
 Picus auduboni, 164.
 carolinus, 310.
 gairdnerii, 308.
 harrisi, 164, 307, 310.
 hirsutus, 310.
 hirsutus, 310.
 hyloscopus, 164.
 jardini, 166.
 Picus leucomelas, 164.
 martini, 307, 310.
 phillipsi, 307, 310.
 pileatus, 310.
 pubescens, 203.
 pyrrhonotus, 308.
 Pigeon, Band-tailed, 142, 420.
 Passenger, 61, 237, 273, 474.
 Red-billed, 385.
 Tres Marias, 385.
 White-crowned, 398.
 Pinicola enucleator leucura, 173.
 Pintail, 7, 140, 183, 444.
 Pipilo arctica, 310.
 crissalis, 416.
 crissalis senicula, 416.
 erythrophthalmus, 46, 317.
 fuscus mesoleucus, 423.
 maculatus arcticus, 423.
 maculatus atratus, 416.
 maculatus falcifer, 416.
 maculatus megalonyx, 416.
 maculatus oregonus, 146.
 Pipit, American, 46, 147, 159, 183,
 280, 282.
 Sprague's, 14, 232.
 Piranga erythromelas, 156.
 hæmalea, 471.
 ludoviciana, 146, 423.
 mexicana, 474.
 rubra, 15, 156.
 Pitangus derbianus, 389, 472.
 sulphuratus trinitatis, 471.
 Plectrophanes ornata, 310.
 smithii, 309.
 townsendi, 307, 310.
 Plegadis autumnalis, 453.
 guarauna, 383, 413.
 Plover, American Golden, 451.
 Belted Piping, 273.
 Black-bellied, 142, 173, 384,
 451, 459.
 Golden, 183, 184.
 Piping, 451.
 Semipalmated, 7, 45, 142,
 451.

- Plover, Snowy, 384, 452.
 Wilson's, 7, 453.
 Podiceps carolinensis, 309.
 Podilymbus podiceps, 14, 45, 56, 441.
 Polioptila cærulea, 160.
 cærulea obscura, 425.
 Polyborus cheriway, 387.
 cheriway pallidus, 387.
 Pocæetes gramineus, 15, 46, 155, 174.
 gramineus affinis, 145.
 gramineus confinis, 423.
 Porzana carolina, 141, 448.
 jamaicensis, 14, 141, 453.
 noveboracensis, 448, 457.
 Procellaria pacifica, 308.
 tenuirostris, 308.
 Progne chalybea, 226.
 subis, 46, 109, 146, 227, 423, 478.
 subis hesperis, 417, 478.
 Protonotaria citrea, 106.
 Psaltriparus minimus, 418.
 minimus californicus, 418.
 minimus saturatus, 148.
 plumbeus, 425, 465.
 Ptarmigan, Rock, 313.
 Willow, 313.
 Ptilogony's townsendi, 307, 310.
 Ptilogonys townsendi, 310.
 Puffinus auduboni, 217.
 cuneatus, 378.
 fuliginosus, 172.
 gravis, 172.
 Pyrocephalus rubineus mexicanus, 422.
 Pyrrhula frontalis, 310.
 QUERQUEDULA cyanoptera, 413, 419.
 discors, 140, 444.
 Quiscalus breweri, 309.
 ferrugineus, 311.
 major, 400.
 quiscula aglæus, 46, 399.
 RAIL, Black, 141, 453.
 Rail, California Clapper, 138.
 Carolina, 141.
 King, 45, 447.
 Little Black, 457.
 Sora, 141, 190, 448.
 Virginia, 141, 190, 447.
 Yellow, 448, 457.
 Ralfe, P. G., notice of his 'The Birds of the Isle of Man,' 240.
 Rallus crepitans, 14.
 crepitans scottii, 398.
 elegans, 45, 307, 447.
 virginianus, 141, 174, 447.
 Raven, American, 145, 237, 415, 422.
 Mexican, 319.
 Northern, 175, 313, 367.
 White-necked, 422.
 Ray, Milton S., a-birding in an auto, 400-418.
 Recurvirostra americana, 413, 448.
 Redhead, 140, 444.
 Redpoll, 102, 145, 181, 313, 314.
 Hoary, 184.
 Redshank, 396.
 Redstart, American, 10, 19, 24, 67, 159, 237, 279, 280, 282.
 Red-wing, Northern, 422.
 Northwestern, 145.
 Thick-billed, 345.
 Regulus calendula, 47, 345, 425.
 calendula grinnelli, 148.
 carbunculus, 307.
 cristatus, 309.
 cuvierii, 306.
 satrapa, 23, 47, 465.
 satrapa olivaceus, 148.
 sp., 200-202.
 tricolor, 309.
 Reiser, Otmar, mention of his 'Ornis Balcanica,' 360.
 Rhincops nigra, 310.
 Rhoads, Samuel N., see Stone, Witmer.
 Rhodostethia rosea, 348.
 Rhynchops nigra, 57, 316.

- Rhynchopsitta pachyrhyncha, 223,
425-428.
Ricebird, Slate-colored, 364.
Ridgway, Robert, notice of his
'Some Observations concerning
the American Families of Oligo-
myodian Passeres,' 233.
Riley, J. H., notices of his papers
on new American birds, 236.
Riparia riparia, 146, 417.
Rissa tridactyla, 442.
Roadrunner, 414, 421.
Robin, American, 10, 47, 148, 183,
229, 276, 277, 278, 282,
314, 327, 342, 464, 470.
Western, 148, 425.
Robins, Mrs. Edward, obituary of,
485.
Ruff, 98, 450.

SAGE, John H., Twenty-third Con-
gress of the American Ornithol-
ogists' Union, 92-96.
Salpinctes obsoletus, 417, 424.
Saltator plumbeiceps, 390.
Saltator, Grayson's, 390.
Sanderling, 173, 450, 459.
Sandpiper, Baird's, 449.
Bartramian, 59, 450.
Buff-breasted, 451.
Curlew, 449.
Least, 141, 384, 449.
Pectoral, 141, 449.
Purple, 449.
Red-backed, 141, 183, 273,
449.
Semipalmated, 449.
Solitary, 316, 450.
Spotted, 109, 141, 413, 451.
Stilt, 449.
Western, 58, 97, 141, 384.
White-rumped, 173, 335, 449,
458.
Sapsucker, Northern Red-breasted,
144.
Yellow-bellied, 278.

Sayornis nigricans, 415, 421.
phoebe, 45, 155.
saya, 144, 421.
Sclateria, 471.
Scolopax grisea, 310.
noveboracensis, 310.
Scoter, American, 141, 231, 445.
Surf, 141, 446.
White-winged, 141, 446.
Scotiaptex cinerea, 222.
nebulosa, 316.
Scott, W. E. D., notice of his 'On
the probable Origin of Certain
Birds,' 112.
See See, Black, 395.
Seiurus aurocapillus, 18, 24, 158.
motacilla, 19, 158.
noveboracensis, 24, 174, 463.
noveboracensis notabilis, 158,
345, 424.
Selasphorus alleni, 144, 414.
platycercus, 84, 109.
rufus, 84, 144.
Setophaga ruticilla, 19, 24, 159.
ruticilla tropica, 237.
Sharples, R. P., the Downy Wood-
pecker, 101.
Shearwater, Audubon's, 217.
Greater, 172.
Sooty, 172.
Wedge-tailed, 375, 378.
Shelley, G. E., notice of Part I of
Volume V of his 'Birds of Africa,'
353.
Shoveller, 140, 203, 383, 444.
Shrike, California, 417.
Loggerhead, 12, 46.
Northern, 146.
White-rumped, 423.
Shufeldt, R. W., Professor Clark on
'The Feather Tracts of Swifts
and Hummingbirds,' 243-245.
Sialia arctica, 310, 425.
mexicana, 148.
mexicana bairdi, 425.
mexicana occidentalis, 418

- Sialia occidentalis*, 310.
 sialis, 15, 47, 275.
Siskin, Pine, 46, 64, 145, 207, 422.
Sitta canadensis, 148.
 carolinensis, 47.
 carolinensis aculeata, 148, 424.
 pusilla, 47.
 pygmaea, 417, 424, 465.
Sittasomus amazonus, 482.
 Smyth, Ellison A., Jr., Bachman's Finch in Montgomery County, Va., 341.
Snipe, Ring-necked, 398.
 Wilson's, 141, 183, 448.
 Snow, Francis H., two birds new to the avifauna of Kansas, 106.
 Snowflake, 7, 102, 145, 313, 314.
Solitaire, Townsend's, 105, 148, 425.
Somateria dresseri, 453.
 spectabilis, 445.
 v-nigra, 140.
Sora, 141.
Soree, 368.
Sparrow, Acadian, 65.
 Chipping, 8, 10, 46, 317, 390, 462.
 Desert, 423.
 English, 145, 173, 246, 416.
 Field, 10, 155, 317.
 Fox, 10, 173, 183.
 Golden-crowned, 146.
 Heermann's Song, 404, 416.
 House, 416, 422, 468.
 Ipswich, 65, 231.
 Large-billed, 149-152.
 Lark, 46, 103.
 Lincoln's, 423.
 Macgillivray's, 65.
 Nuttall's, 146, 416.
 Oregon Vesper, 145.
 Rusty Song, 146.
 Sage, 423.
 San Diego Song, 416.
 Santa Cruz Song, 416.
 Savanna, 10, 46, 155, 279, 280, 282, 340.
 Sparrow, Seaside, 5, 226.
 Song, 10, 155, 251, 468.
 Swamp, 10, 46, 155, 279, 280, 282.
 Townsend's, 146.
 Tree, 183.
 Vesper, 46, 155.
 Western Chipping, 109, 146, 416, 423.
 Western Lark, 416, 423.
 Western Savanna, 145.
 Western Vesper, 423.
 White-crowned, 10, 314, 423.
 White-throated, 46, 279, 280, 282, 461.
Spatula clypeata, 140, 383, 444.
Speotyto cunicularia hypogaea, 143, 414, 421.
Sphyrapicus ruber notkensis, 144.
 thyroideus, 421.
 varius, 14, 174.
 varius nuchalis, 421.
Spinus pinus, 15, 46, 64, 145, 422, 470.
Spizella pusilla, 155, 317.
 socialis, 15, 46, 317, 390.
 socialis arizonae, 109, 146, 416, 423.
Sprigtail, 332.
Squatarola squatarola, 142, 173, 384, 451.
Steganopus tricolor, 335, 344, 413, 448.
 Stejneger, Leonhard, notice of his 'The Birds of the Genus *Cinclus* and their Distribution,' 111; isolation vs. natural selection, 265-270.
Stelgidopteryx serripennis, 146, 341, 463.
Stellula caliope, 144.
Stephanoxys delalandii, 85.
Stercorarius longicaudus, 452.
 parasiticus, 139, 441.
 pomarinus, 452.
Sterna antillarum, 14, 57, 377, 396, 452.

- Sterna boyssii*, 310.
cantiaca, 310.
caspia, 442.
forsteri, 412, 442.
fuliginosa crissalis, 378.
havelli, 307.
hirundo, 396, 442.
maxima, 377.
paradisaea, 172, 452.
trudeauii, 307.
- Stilt, Black-necked, 57, 346, 402, 413.
- Stone, Witmer, some light on night migration, 249-252; a bibliography and nomenclator of the ornithological works of John James Audubon, 298-312; some unpublished letters of Alexander Wilson and John Abbot, 361-368.
- Stone, Witmer, and Samuel N. Rhoades, notice of a paper by, on Birds and Mammals from the Colorado Delta, Lower California, 234.
- Storer, J. H., Jr., the Black Vulture again in Massachusetts, 222.
- Strix americana*, 308.
californica, 303, 304, 307, 310.
cunicularia, 304, 310.
forficata, 308.
noctua, 310.
passerina, 310.
pratincola, 100, 420.
- Sturnella magna*, 15.
magna argutula, 155.
magna neglecta, 145.
neglecta, 309, 415.
- Sturnus vulgaris*, 346.
- Sucrier, 393, 394.
- Sula bassana*, 173, 274, 443.
brewsteri, 380.
nebouxii, 379.
- Surnia funerea caparoch*, 474.
funerea furnerea, 474.
ulula caparoch, 108.
- Swales, Bradshaw H., three Michigan records, 100; the Carolina Chickadee in Southern Michigan, 342. See also Taverner, P. A.
- Swallow, Bank, 146, 156, 190, 417.
Barn, 7, 278, 279, 281, 423.
Cliff, 146, 417, 423.
Eave, 468.
Rough-winged, 146, 190, 341, 463.
Tree, 6, 146, 276, 278, 279, 280, 468.
Violet-green, 146, 423.
Western Barn, 417.
Western Tree, 417.
- Swan, Trumpeter, 141, 446.
Whistling, 182, 446.
- Swenk, Myron H., some Nebraska bird notes, 108.
- Swift, Black, 144.
Chimney, 174, 278, 282.
Vaux's, 144.
White-throated, 407, 414.
- Swifts, feather tracts of, 68-77, 243.
- Sylvia aestiva*, 304.
arctica, 310.
autumnalis, 304.
bachmani, 307.
blackburnia, 309.
blackburniae, 309.
canadensis, 304.
carbonata, 306.
childrenii, 304, 306.
cœrulea, 304.
delafieldi, 308.
macgillivrayi, 308, 310.
mitrata, 312.
occidentalis, 310.
palmarum, 304, 309.
pardalina, 309.
parus, 304.
petechia, 304, 309.
philadelphia, 310.
pinus, 304.
protonotaria, 309.
protonotarius, 309.

- Sylvia rara*, 304.
 rathbonia, 307.
 roscoe, 304, 306.
 sphagnosa, 304.
 swainsonii, 307.
 trichas, 304.
 trogodytes, 310.
 vigorsii, 304, 306.
 wilsoni, 312.
- Sylvicola blackburniae*, 206.
 castanea, 206.
 coronata, 206.
 icterocephala, 206.
 maculosa, 206.
 maritima, 206.
 petechia, 311.
 pinus, 311.
 virens, 206.
- Symphemia semipalmata*, 58, 60, 398.
 semipalmata inornata, 344, 384, 450.
- Synallaxis azarae*, 481.
 frontalis, 480.
 griseiventris, 481.
 ruficapilla, 481.
- Syrnium varium*, 23, 45.
 occidentale caurinum, 143.
- TACHORNIS parva*, 75.
- Tachycineta thalassina lepida*, 146, 423.
- Tachyphonus luctuosus*, 471.
- Tanager*, Louisiana, 14, 146, 423.
 Scarlet, 156, 474.
 Summer, 9, 156, 278, 281.
- Tangavius æneus æneus*, 389.
- Tantalus fuscus*, 308.
 loculator, 57.
- Tattler*, Wandering, 184.
- Taverner*, P. A., some more Michigan records, 107; tagging migrants, 232; southeastern Michigan records, 335; Hudsonian Godwit (*Limosa hæmastica*) in Ontario, 335.
- Taverner*, P. A., and B. H. Swales, Lesser Snow Geese in Michigan and Ontario, 219.
- Teal*, Blue-winged, 7, 140, 332, 419, 444.
 Cinnamon, 402, 413, 419.
 Green-winged, 140, 183, 327, 332, 383, 444.
- Telmatodytes palustris griseus*, 67.
 palustris marianæ, 67.
 palustris paludicola, 148.
- Tern*, Arctic, 452.
 Black, 281, 402, 412, 443.
 Black-headed, 393.
 Caspian, 442.
 Common, 442.
 Forster's, 402, 412, 442.
 Least, 377, 452.
 Pacific Sooty, 375, 378.
 Royal, 375, 377.
- Thalassodroma pelagica*, 311.
- Thalurania belli*, 237.
 sp., 81.
- Thayer*, John E., Leach's Petrel inland in Massachusetts, 97; Richardson's Owl in Eastern Massachusetts, 222; eggs and nests of the Thick-billed Parrot (*Rhynchopsitta pachyrhyncha*), 223; nest and eggs of the Beardless Flycatcher (*Ornithion imberbe*), 460.
- Thayer*, John E., and Outram Bangs, notice of their 'The Mammals and Birds of the Pearl Islands,' 234; notice of their 'Vertebrata from the Savanna of Panama,' 235.
- Thompson*, Frank J., obituary of, 357.
- Thrasher*, Brown, 46, 279.
 California, 417.
 Curve-billed, 424.
 Pasadena, 407, 417.
 Sage, 424.
- Thrush*, Audubon's Hermit, 425.

- Thrush, Dwarf Hermit, 148.
 Hermit, 10, 47, 160, 276.
 Monterey Hermit, 418.
 Olive-backed, 282.
 Russet-backed, 148, 412, 418.
 Varied, 148.
 Willow, 345.
 Wilson's 160, 280, 282.
 Wood, 9, 13, 278, 282.
- Thryomanes bewickii, 47.
 bewickii calophonus, 147.
 bewickii leucogaster, 424.
 bewickii spilurus, 147.
- Thryothorus ludovicianus, 47, 105.
- Titlark, 183, 341, 342.
 Brown, 300.
- Titmouse, Bridled, 424.
 Gray, 424.
 Plain, 187, 347, 417.
 San Francisco, 186.
 Tufted, 47, 277.
- Totanus flavipes, 59, 384, 450.
 melanoleucus, 59, 141, 450.
 solitarius, 278.
- Towhee, 6, 46, 317, 462.
 Anthony's, 409, 416.
 Arctic, 423.
 California, 416.
 Cañon, 423.
 Green-tailed, 423.
 Oregon, 146.
 San Diego, 416.
 San Francisco, 416.
 Spurred, 404, 416.
- Townsend, Charles W., the Lark Sparrow in Massachusetts, 103; notes on the birds of Cape Breton Island, 172-179; note on the crop contents of a nestling Mourning Dove (*Zenaidura macroura*), 336.
- Toxostoma curvirostre, 424.
 redivivum, 187, 417.
 redivivum pasadena, 417.
 rufum, 46.
- Trichas philadelphia, 206.
- Tringa canutus, 59, 60, 141, 449.
 maculata, 277, 280.
 minutilla, 384.
- Trochili, pterylosis of, 77-88.
- Trochilus alexandri, 77, 83.
 colubris, 174, 245.
- Troglodytes aëdon, 47.
 aëdon aztecus, 147, 424.
 aëdon parkmani, 417.
 americana, 307.
 bewickii, 207.
 hyemalis, 310.
 ludovicianus, 307.
 obsoleta, 310.
 obsoletus, 310.
 parkmanii, 308.
 palustris, 207.
- Trogon citreolus, 388.
- Trogon, Citreoline, 388.
- Tryngites subruficollis, 451.
- Tufts, Harold F., nesting of Cross-bills in Nova Scotia, 339.
- Turdus apicalis, 236.
 ludovicianus, 306.
 minor, 310.
 montanus, 236.
 nanus, 308, 310.
 solitarius, 207.
 townsendi, 308.
 wilsoni, 311.
 wilsonia, 207.
- Turkey, Water, 217.
 Wild, 237, 241, 300.
- Turnstone, European, 335.
 Ruddy, 452.
- Tyranniscus bolivianus, 481.
 viridissimus, 481.
- Tyrannula nigricans, 311.
 pusilla, 196, 311.
- Tyrannus dominicensis, 399.
 griseus, 309.
 melancholicus couchi, 389.
 tyrannus, 144, 414.
 verticalis, 144, 389, 414, 421.
 vociferans, 421.

- UPUCERTHIA nigrofumosa, 482.
 Uranomitra cyanocephala, 338.
 salvini, 337.
 Uria antiqua, 310.
 californica, 412.
 lomvia, 441.
 townsendi, 307.
 troile, 452.
 troile californica, 139, 377.
 Urubitinga anthracina, 386.

 VANELLUS vanellus, 221.
 Verrill, A. Hyatt, notice of his
 paper on the Avifauna of Do-
 minica, 236.
 Vireo bartrami, 311.
 bellii, 309.
 flavifrons, 21.
 gilvus, 309, 423.
 gilvus swainsoni, 146, 417.
 huttoni obscurus, 147.
 noveboracensis, 156.
 noveboracensis maynardi,
 400.
 olivaceus, 20, 21, 146, 156.
 philadelphicus, 22.
 solitarius, 22, 156, 207.
 solitarius cassini, 147.
 Vireo, Anthony's, 147.
 Blue-headed, 10, 21, 156.
 Cassin's, 147.
 Key West, 400.
 Philadelphia, 22.
 Red-eyed, 9, 13, 20, 21, 67,
 146, 156, 278, 282.
 Warbling, 278, 423.
 Western Warbling, 146, 417.
 White-eyed, 6, 9, 13, 156,
 278.
 Yellow-throated, 21, 278.
 Vireosylva olivacea, 67.
 Vultur atratus, 366.
 aura, 366.
 Vulture, Black, 45, 222, 386.
 California, 413.
 Turkey, 45, 142, 221, 385,
 403, 408, 413, 420.

 WARBLER, Audubon's, 147, 390,
 424.
 Bay-breasted, 20, 24, 157,
 280.
 Black-and-White, 9, 16, 24,
 156, 279, 280, 282.
 Blackburnian, 24, 158, 282.
 Black-fronted, 230.
 Black-headed Green, 364.
 Black-poll, 20, 23, 24, 157.
 Black-throated Blue, 22, 24.
 Black-throated Gray, 147,
 424.
 Black-throated Green, 17,
 24, 158, 282.
 Blue-winged, 16, 104, 344.
 Calaveras, 147.
 California Yellow, 417.
 Canadian, 24.
 Cape May, 105, 109, 438.
 Cerulean, 24, 278, 279, 280.
 Chestnut-sided, 17, 24, 157,
 282.
 Connecticut, 24, 438.
 Golden Pileolated, 147.
 Golden-winged, 24, 104, 439.
 Hermit, 147.
 Hooded, 8, 13, 19, 159, 277,
 278, 282, 439.
 Kentucky, 9, 158, 278, 344.
 Lawrence's, 345.
 Lutescent, 147.
 Macgillivray's, 147.
 Magnolia, 9, 24, 157, 282.
 Mourning, 22.
 Myrtle, 9, 10, 22, 24, 46, 147,
 157, 276, 277, 279, 280, 282.
 Nashville, 22.
 Orange-crowned, 10, 46, 157,
 276, 278, 282, 344, 424.
 Palm, 23, 24, 158, 279, 345.
 Parula, 8, 13, 157, 277, 282.
 Pileolated, 417, 424.
 Pine, 10, 12, 46, 273.
 Prairie, 105.
 Prothonotary, 8, 106, 278,
 300, 439.

- Warbler, Sonora Yellow, 424.
Swainson's, 8, 156, 227, 278.
Sycamore, 8.
Tennessee, 9, 22, 24, 157, 282, 438.
Townsend's, 147.
Virginia's, 424.
Western Parula, 24.
Worm-eating, 9, 13, 157, 281.
Yellow, 17, 22, 24, 147, 278, 280, 281, 282.
Yellow Palm, 46, 158.
Yellow-throated, 158.
- Water-Thrush, 463.
Grinnell's, 158, 345, 424.
Louisiana, 13, 19, 24, 158, 281.
- Waxwing, Cedar, 46, 146, 233, 342, 390.
- Wayne, Arthur T., a contribution to the ornithology of South Carolina, 56-67; moult of the Snowflake (*Passerina nivalis*) 102; date of discovery of Swainson's Warbler, 227; the American Scoter, Limpkin, and Ipswich Sparrow in South Carolina, 231.
- Weber, J. A., the American Egret in the Catskill Mountains, 457; contents of the crop and gizzard of a young Ruffed Grouse, 459.
- Wheelock, Irene G., nesting habits of the Green Heron, 432-436.
- Whip-poor-will, 22.
- Whittaker, J. I. S., review of his 'Birds of Tunisia,' 238.
- Widgeon, American, 444.
- Widmann, Otto, should bird protection laws and their enforcement be in the hands of the National Government? 109.
- Willard, B. G., exceptional eggs of the Bald Eagle (*Haliaeetus leucocephalus*), 222.
- Willet, 7, 398.
Western, 344, 384, 450.
- Williams, J. B., the Yellow-crowned Night Heron near Toronto, 220.
- Williams, R. W., Jr., further notes on the birds of Leon County, Florida, 153-161. See also Palmer, T. S.
- Wilson, Alexander, unpublished letters of, 361-365.
- Wilsonia mitrata, 19, 159.
pusilla chryseola, 147.
pusilla pileolata, 417.
- Wood, J. Claire, autumn Warbler hunting, 20-25; Wayne County, Mich., notes, 344; the White-rumped Sandpiper in Wayne Co., Mich., 458.
- Woodcock, American, 58, 448.
- Woodpecker, Ant-eating, 421.
Arctic Three-toed, 316.
Cabanis's, 414, 421.
California, 409, 414.
Downy, 45, 101.
Elegant, 388.
Gairdner's, 143.
Grayson's, 388.
Hairy, 161-171, 265-270.
Harris's, 143.
Imperial, 426.
Ivory-billed, 237.
Lewis's, 144, 421.
Mexican Pileated, 388.
Northern Pileated, 144.
Pileated, 163.
Red-bellied, 45, 399.
Red-cockaded, 12, 45, 62.
Red-headed, 45, 347.
Red-naped, 421.
Southern White-headed, 407, 414.
Texan, 421.
Williamson's, 421.
Willow, 414.
Yellow-bellied, 278.
- Woodruff, E. Seymour, the Cape May Warbler in Litchfield County Conn., 105; the Prairie Horned

- Lark a summer resident in Connecticut, 461; probable breeding of the White-throated Sparrow in Connecticut, 461.
- Worcester, Dean C., see McGregor, R. C.
- Worthen, Charles K., Swainson's Warbler in Nebraska, 227.
- Wren, Baird's, 424.
 Bewick's, 47.
 Cactus, 424.
 Cañon, 424, 465.
 Carolina, 47, 105.
 Happy, 391.
 House, 47, 280, 282, 468.
 Long-billed Marsh, 67.
 Marian's Marsh, 67.
 Pacific Bewick's, 147.
 Parkman's, 417.
 Rock, 411, 417, 424.
 Short-billed Marsh, 47.
 Tule, 148.
 Western House, 147, 424.
 Western Winter, 148.
 Winter, 282.
 Worthington's Marsh, 67.
- Wren-tit, Intermediate, 418.
 Pallid, 417.
 Ruddy, 418.
- Wytsman, P., notice of his 'Genera Avium,' Parts I-V, 118.
- XANTHOCEPHALUS xanthocephalus, 415, 422.
- Xema sabinii, 452.
- Xenopicus gravirostris, 414.
- Xiphocolaptes simpliceus, 482.
- YELLOW-BREAST, 393.
- Yellow-legs, 384, 450.
 Greater, 141, 450.
- Yellow-throat, Florida, 46.
 Maryland, 227, 281.
 Northern, 18, 20, 23, 24, 345.
 Pacific, 147.
 Western, 424.
- Yungipicus kizuki, 269.
 nigrescens, 269.
 seebohmi, 269.
- ZAMELODIA ludoviciana, 22.
 melanocephala, 423.
 melanocephala capitalis, 417.
- Zenaidura macroura, 142, 385, 413, 420.
 carolinensis, 475.
 carolinensis marginata, 475.
- Zonotrichia albicollis, 46, 461.
 coronata, 146.
 leucophrys, 314, 423.
 leucophrys nuttalli, 146, 416.

ERRATA.

Page 141, line 8, for HUTCHIN's read HUTCHINS's.

" 145, line 26, for **montanus** read **montana**.

" 326, line 5 from bottom, for chronometor and watchmaker read chronometer and watch maker.

" 345, line 1, for Four read Two.

" 388, line 29, for PILEOLATED read PILEATED.

ti

5604

GENERAL LIBRARY

GENERAL LIBRARY,
UNIV. OF MICH.
OCT 6 1906

th 5604
Old
Series,
Vol. XXXI

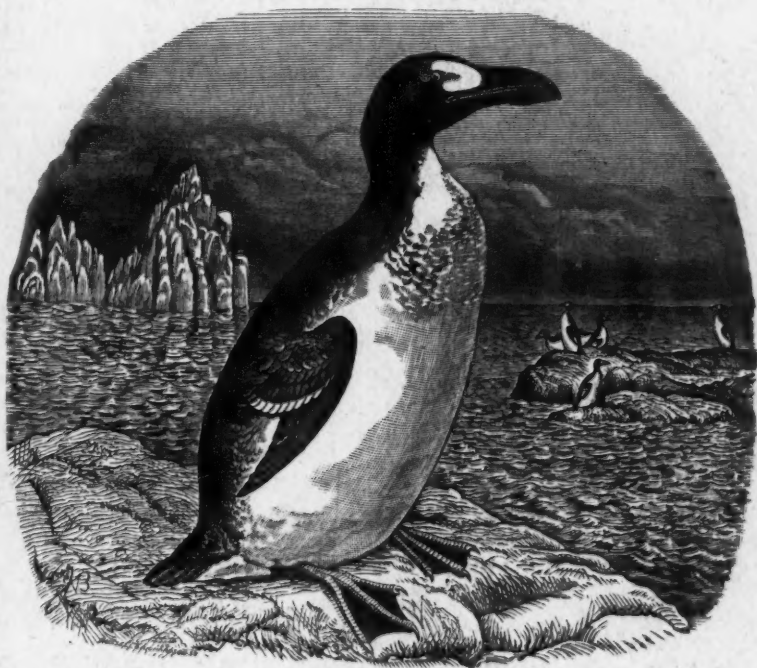
CONTINUATION OF THE
BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB

New
Series,
Vol. XXIII

The Auk

A Quarterly Journal of Ornithology

Vol. XXIII — OCTOBER, 1906 — No. 4



PUBLISHED BY

The American Ornithologists' Union

CAMBRIDGE, MASS.

Entered as second-class mail matter in the Post Office at Boston, Mass.

CONTENTS.

	PAGE
SOME UNPUBLISHED LETTERS OF ALEXANDER WILSON AND JOHN ABBOT. By Witmer Stone	361
ORNITHOLOGICAL NOTES FROM WESTERN MEXICO AND THE TRES MARIAS AND ISABELLA ISLANDS. By H. H. Bailey. (Plates VI and VII.)	369
THE WEST INDIAN BLACK FORMS OF THE GENUS <i>Careba</i> . By Austin H. Clark	392
BIRDS OBSERVED IN THE FLORIDA KEYS. By Henry W. Fowler	396
A-BIRDING IN AN AUTO. By Milton S. Ray	400
NOTES ON BIRDS OF SILVER CITY, NEW MEXICO. By John T. Sharpless Hunn	418
CONCERNING THE THICK-BILLED PARROT. By W. H. Bergtold	425
CHANGE OF LOCATION OF A CROW ROOST. By Chreswell J. Hunt	429
NESTING HABITS OF THE GREEN HERON. By Irene G. Wheelock. (Plate VIII)	432
BIRDS OF TORONTO, ONTARIO. PART I, WATER BIRDS. By James H. Fleming	437
THE SPRING MOULT OF <i>Larus atricilla</i> Linn. By C. William Beebe. (Plate IX)	454

GENERAL NOTES.—The American Egret (*Herodias egretta*) in the Catskill Mountains, 457; A Second Yellow-crowned Night Heron (*Nycticorax violaceus*) at Portland, Me., 457; A Late Spring Record for the Yellow Rail (*Porzana noveboracensis*) in Massachusetts, with Remarks on the 'Ornithological Mystery,' 457; The White-rumped Sandpiper in Wayne Co., Mich., 458; An Eskimo Curlew Captured at Sea, 459; Contents of the Crop and Gizzard of a Young Ruffed Grouse, 459; Swallow-tailed Flycatcher (*Muscivora forficata*) in New Brunswick, 460; Nests and Eggs of the Beardless Flycatcher (*Ornithion imberbe*), 460; The Prairie Horned Lark a Summer Resident in Connecticut, 461; The Bobolink in Colorado, 461; Probable Breeding of the White-throated Sparrow in Connecticut, 461; The Towhee Nesting in Bushes, 462; The Rough-winged Swallow (*Stelgidopteryx serripennis*) Breeding near Springfield, Mass., 463; The Water-Thrush (*Seiurus noveboracensis*) Nesting in Rhode Island, 463; A Robin's Nest without Mud, 464; The Birds of Wyoming: Some Corrections, 464.

RECENT LITERATURE.—Brewster's 'Birds of the Cambridge Region of Massachusetts,' 466; Hellmayr 'On the Birds of the Island of Trinidad,' 470; Cherrie on Birds Collected in Trinidad, 471; Report on the Immigration of Birds in England and Wales in the Spring of 1905, 472; A Hand-List of the Birds of the Philippine Islands, 472; Oberholser's Revision of the Genus *Collocalia*, 473; New Names for North American Birds, 474; Howell on 'Birds that Eat the Cotton Boll Weevil,' 475; Palmer on Federal Game Protection, 475; Game Protection in 1905, 477; Miller on Birds from Southern Sinaloa 478; Miller on Birds from Northwestern Durango, 478.

CORRESPONDENCE.—The Speed of Birds, 479; The Supposed Types in the Lafresnaye Collection, 480.

NOTES AND NEWS.—Obituary: Henry Baker Tristram, 484; Victor Fatio, 484; Mrs. Edward Robins, 485. Bibliography of the Ornithological Writings of Dr. J. Cabanis, 485; Founding of the California Audubon Society, 485; Bequest to the National Association of Audubon Societies, 486; Seventh International Zoological Congress, 486; Annual Meeting of the Maine Ornithological Society, 487; Twenty-fourth Congress of the American Ornithologists' Union, 487.

'THE AUK,' published quarterly as the Organ of the AMERICAN ORNITHOLOGISTS' UNION, is edited by Dr. J. A. ALLEN, with the assistance of Mr. FRANK M. CHAPMAN.

TERMS:—\$3.00 a year, including postage, strictly in advance. Single numbers, 75 cents. Free to Honorary Fellows, and to Fellows, Members, and Associates of the A. O. U. not in arrears for dues.

Subscriptions should be addressed to DR. JONATHAN DWIGHT, Jr., Business Manager, 2 EAST 34TH ST., NEW YORK, N. Y. Foreign Subscribers may obtain 'THE AUK' through R. H. PORTER, 7 PRINCES STREET, CAVENTISH SQUARE, W., LONDON.

All articles and communications intended for publication and all books and publications for notice, should be sent to Dr. J. A. ALLEN, AMERICAN MUSEUM OF NATURAL HISTORY, 77TH ST. AND CENTRAL PARK, WEST, NEW YORK CITY.

Manuscripts for general articles should reach the editor at least six weeks before the date of the number for which they are intended, and manuscripts for 'General Notes' and 'Recent Literature' not later than the first of the month preceding the date of the number in which it is desired they shall appear.

- Condor**, The, VIII, Nos. 4, 5, July-Aug., Sept.-Oct., 1906.
Emu, The, V, Pt. 1, July, 1906
Forest and Stream, LXVII, Nos. 1-13, 1906.
Journal Maine Orn. Soc., VIII, No. 3, Sept., 1906.
Monthly Bulletin Pennsylvania Dept. Agric., Zoölogy, IV, Nos. 1, 2, 1906.
New York Zoölogical Soc., Tenth Ann. Report, for 1905 (1906).
Ornithologisches Jahrbuch, XVII, Heft. 3, 4, 1906.
Ornithologische Monatsberichte, XIV, Heft 7-9, July-Sept., 1906.
Ornithologische Monatsschrift, XXXI, No. 6-8, June-Aug., 1906.
Ottawa Naturalist, XX, Nos. 4-6, July-Sept., 1906.
Philippine Journal of Science, I, Nos. 4-6, May-July, 1906.
Proceedings Acad. Nat. Sci. Philadelphia, LVIII, pt. 1, Jan.-April, 1906.
Science, N. S., XXIII, Nos. 600-612, 1906.
Vermont Botanical Club, Bull. No. 1, April, 1906.
Warbler, The, II, No. 3, 1906.
Wilson Bulletin, XIII, No. 2, June, 1906.
Zoölogist, The, 4th Ser., X, Nos. 114-116, June-Aug., 1906.

PUBLICATIONS RECEIVED.

Arrigoni, E. degli Oddi. (1) Note sul IV Congresso Ornitologico Internazionale tenutosi in Londra nel Giugno 1905. (Atti del Reale Inst. Veneto di Scienze, LXV, pp. 729-798.) (2) Nuove osservazioni sulla cattura della *Fuligula homeyeri* Bald. nel Veneto. (Boll. della Soc. Zool. Italiana, 1906, fasc. iv-vi, and sep., repaged, 12 pp.) (3) Nota sulla cattura di una *Emberiza aureola* Pall. in Toscana. (Avicula, X, 1906, pp. 97, 98.) (4) Notizie sopra un ibrido *Anas boscas* e *Spatula clypeata* della Collezione Contarina. (*Ibid.*, pp. 99, 100.)

Brewster, William. The Birds of the Cambridge Region of Massachusetts. 4to, pp. 426, pll. viii, 1906. (Memoirs Nuttall Orn. Club, No. IV.)

Dresser, H. E. Note on the Eggs of Ross's Rosy Gull. (*Ibis*, July, 1906, p. 610, pl. xx.)

Finsch, O. (1) Dr. Paul Leverkühn. (*Ibis*, April, 1906, pp. 364-366.)

(2) On a new Owl from Java. (*Ibis*, July, 1906, pp. 401-407, pl. xvii.)

Hellmayr, C. E. Revision der Spix'schen Typen brasilianischer Vögel. (Abh. d. k. Bayer. Akad. Wiss., II Kl., Bd. XXII, Abt. 3, pp. 564-726, pll. 2.)

Linville, Henry R., and Henry A. Kelly. A Text-Book of General Zoölogy. 12mo, pp. x+462, 233 illust. Ginn & Co., Boston.

Lönnberg, Einar. Contributions to the Fauna of South Georgia. I. Taxonomic and Biological Notes on Vertebrates. (Kungl. Svenska Vetenskapsacademiens Handlingar, XL, No. 5, 1906.)

Oberholser, Harry C. Notes on Birds from German and British East Africa. (Proc. U. S. Nat. Mus., XXX, pp. 801-811.)

Palmer, T. S. (1) Directory of Officials and Organizations concerned with the Protection of Birds and Game, 1906. Circular No. 53, Bureau of Biological Survey. (2) Game Protection in 1905. (Yearbook U. S. Dept. Agric. for 1905, pp. 611-617.) (3) Federal Game Protection: a Five Year's Retrospect. (*Ibid.*, pp. 541-562.)

Palmer, T. S., and R. W. Williams, Jr. (1) Game Laws for 1906. A Summary of the Provisions relating to Seasons, Shipment, Sale, and Licenses. Farmers' Bull. No. 265, U. S. Dept. Agric. (2) Close Seasons for Game in Maryland, District of Columbia, Virginia, and North Carolina, 1906. Poster No. 14, U. S. Dept. Agric., August 18, 1906.

Schalow, Herman. (1) Beiträge zu einer ornithologischen Bibliographie des Atlas Gebietes. (Journ. f. Orn., Jan., 1906, pp. 100-143.) (2) Jean Cabanis. Gedächtnisrede gehalten in der März-Sitzung der Deutschen Ornithologischen Gesellschaft. (*Ibid.*, July, 1906, pp. 329-358.)

Wood, Norman A. Twenty-five Years of Bird Migration at Ann Arbor, Michigan. (Eighth Ann. Rep. Michigan Acad. Sci., pp. 151-156, with table.)

American Ornithology, VI, No. 7, July-August, 1906.

Annals of Scottish Nat. Hist., July, 1906.

Avicultural Magazine, July-Sept., 1906.

Bird-Lore, VIII, No. 4, July-Aug., 1906.

Birds and Nature, June, 1906.

Bulletin British Orn. Club, XVI, No. CXXVI, and Vol. XVII, 1906.

(Continued on 3rd page of Cover.)

